Doing Business with **AFRICA**

--- page 18

International Management Digest®

O.S.

MAY 1960
ONE DOLLAR

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A. M. Lederer: An American gets a three-year assignment to upgrade the free world's business management. (Management)

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INTERNATIONAL
MANAGEMENT'S

American Letter

Dear Sir: May, 1960

TAKE A CAREFUL LOOK AT THE U.S. BUSINESS SCENE. PUZZLING, IS IT NOT? American businessmen have been at least as confused as their counterparts overseas. So it is a good time to attempt to put the prospects into perspective.

Business is good, by any measurement, and should stay that way this year. Note the strong points: 1. Business' plans for new plant and equipment investment show a sharp rise over last year. 2. Consumer income is at a record level, and the latest survey of consumer buying intentions is encouraging for autos and appliances. 3. Inventory/sales ratios are low, leaving plenty of room for growth. 4. Construction seems certain to benefit from lower interest rates. 5. Exports and imports are rising. 6. And Spring has arrived. Do not underestimate the depressing effect of the miserable weather on sales--and on businessmen's morale.

Why then the worry? Partly it was the reaction to over-optimism, to high (and perhaps unrealistic) stock prices and interest rates, and to an as-yet unexplained drop-off in manufacturers' new orders. Partly it reflects a realization that the U.S. economy is in the throes of a major readjustment to new world conditions.

YOU CAN SUM UP THE CONDITIONS IN TWO WORDS: CAPACITY AND COMPETITION--on a worldwide scale. The very high level of unsatisfied demand, built up during the 1930s, '40s, and even early '50s, seems to have passed--certainly in the U.S. American industrial capacity is brimming. And most other industrial nations have added large new capacity. Likewise with raw materials: Most commodities are in ample supply, and an army of new substitute materials are fighting to displace the old.

Combine these facts with government's determination to pursue conservative financial policies (look at Britain's new "hold-the-line" budget), and you see why inflationary fears are dwindling. Note, too, INTERNATIONAL MANAGEMENT's survey of inventory trends in the leading industrial nations (page 17).

There's an atmosphere of stiffening competition. Americans, with what some call an "over-built cost structure," are feeling it keenly. For the first time international competition is imposing its discipline on U.S. managers--and it is a major reason why their capital spending this year appears directed more at modernization and cost-cutting than at expansion of capacity.

THERE IS A STRICTER FINANCIAL DISCIPLINE AS WELL--the necessity to maintain confidence in the dollar. The recent decline in short-term money rates in New York--while a welcome relief for many--already seems to have sent some "hot money" scurrying to other financial centers. With their eyes on the international scene, and on the U.S.A.'s dwindling gold hoard, monetary authorities here are in no mood to let short term rates drop further.

To sum up: For the U.S.A., at least, the days of easy-going, inflationary expansion seem at an end.

American Letter

LETTER FROM AUSTRALIA: "A LOT MORE BUSTLING ABOUT HERE BY FOREIGN BUSINESSMEN." Many of them are just now "discovering" Australian opportunities, writes McGraw-Hill's Melbourne bureau. There's an expansive, boom atmosphere Down Under; visitors wonder why they hadn't known of the prospects before.

For example: No less than 15 Japanese companies are negotiating for pieces of projects ranging from mining to motels (the equivalent of $100-million is involved). Chinese capital, migrating from tense Asian areas, is moving into Australian real estate. French and German industrialists are looking closely at possible plant operations, U.S. and British investors are expanding theirs. Securities, too: Foreign purchases of Australian securities have been running six times higher than any previous year. (Robeco, the large Dutch investment fund, reports that it has taken "an initial interest in some dynamic Australian companies.")

Australia has its problems--an inflationary tendency, the vulnerability of a nation still too dependent on a single export, wool. But few Australians or foreigners seem worried; they are too busy investing--and reinvesting--in one of the world's fastest-growing economies. National income is up 120% in 10 years.

HOW TO TAKE ADVANTAGE OF AUSTRALIA'S GROWTH? A simple trade relationship looks especially promising now. The nation is buying abroad at an annual rate of $2,000-million; import restrictions are few, quotas were recently removed (this is mainly an anti-inflation measure). But: Tariffs will rise. A further measure of protection will probably be granted--gradually--to Australian manufacturers.

Licensing deals, often including equity participation, are popular. Australians are avid seekers after patent and manufacturing rights. American companies have done the most business so far, but Australians are looking to Europe, too.

Other avenues: Service industries attract more interest. Hire purchase is one; Australians buy a lot "on tick." There are hotel-building and land subdivision schemes (you hear Florida-like talk about new vacation "paradises"). And note the trend for foreign investors to acquire run-down businesses at bargain prices.

Australians generally welcome immigration of capital; regulations are lenient. But it is usually wise to encourage local participation. General Motors Corp.'s recent termination of local investment in its huge Australian subsidiary caused much resentment. (Yet another American company withdrew from an Australian partnership because of a severe disagreement over financial policy.)

LOOKING AHEAD: Britain's position as chief trading partner and supplier of capital is waning. Japan has replaced the U.K. as top wool customer, and U.S. investment--nearly $1,000-million now--is moving up rapidly. Incidentally, Australians predict a profitable trading relationship with Latin America. They hope for a direct airline route soon and--later, perhaps--direct shipping connections.

COMPETITION AMONG MACHINE TOOL PRODUCERS GROWS HOTTER. Four shows are scheduled in Western Europe this year: London, June 25 to July 8; Paris, September 9 to 18; Hanover, September 11 to 20; and Milan, October 7 to 16. And in the U.S.A., manufacturers are preparing for a huge exhibit in Chicago, scheduled for September 6-16. The Soviet bloc's machine tool exhibit at the recent Leipzig spring fair already has made a favorable impression on buyers--especially from the underdeveloped lands.

All this spells increased competition to American producers. And this trend will be emphasized in a forthcoming report by the Commerce Department here--the first world-wide study ever made on sales of machine tools, including the Soviet bloc. So far, U.S. producers are not doing badly--being buoyed up by unusually large orders from the expanding foreign automotive industry (see p 21). But overall business is not up to expectations, say manufacturers here. Thus, look for more Yankee toolmakers to set up operations in Europe and Japan this year.

* * * *

"WE DON'T ANTICIPATE ANY TROUBLE," SAY U.S. FIRMS IN SOUTH AFRICA. Outwardly, American companies appear confident they'll "weather" racial strife in the Union. Also, U.S. investors, including those who bought South African gold shares as a hedge against rumored devaluation of the dollar, reportedly have not pulled out of the market in large numbers. American businessmen privately admit they are worried; they have over $500-million invested directly or indirectly in the Union. And few of them believe that the "informal talks" on South Africa that undoubtedly will take place at the May conference of Commonwealth Prime Ministers in London will appreciably soften the Pretoria government's apartheid policies.

Also, U.S. firms will now take a hard look at new investments in other African areas--though they insist that political changes will not deter them from valid investment projects. At least for the short term, Africans may have to rely more often on government or government-guaranteed assistance from abroad.

For a closer look at businessmen's attitudes toward Africa, see page 18.

NEW & NOTEWORTHY: General Electric Co. Ltd., London, has a small prototype of a commercial, battery-operated refrigerator. It cools merely by pushing direct current through semi-conductor materials. (A number of other companies in the world are at work on this revolutionary process.)

Continental Tobacco Co. (Huntington, West Va., U.S.A.) says it is ready to introduce "Flame Tip" cigarettes. To light, rub on the bottom of the pack.

"Do-it-yourself" vacuum tubes have been designed by J. Owen Harries, A Bermuda inventor. They come in a simple kit -- no complex welding, baking, or evacuating equipment is needed. Only prototype kits are available now.

One packaging machine does the work of two or three men: St. Regis Paper Co.'s Vredomatic machine (150 E. 42nd St., New York, N.Y., U.S.A.) automatically fills and sews up open-mouth, multiwall sacks for salt, fertilizer, etc.

(For more New Products, see "Product Digest" on another page)

THE VOLKSWAGEN WILL HAVE A "BIG BROTHER." Set for September, 1961, the bigger version will have same chassis, but different styling and more seating and luggage room. As sign of expansion (see page 21), note that Volkswagen do Brasil has begun shipping cars to the U.S. market.

Citroën also plans a new car for 1961, a smaller version of DS 19. The company is also tooling up in Argentina to assemble 2-CV's. Output will start at 2,000 a year, rise to 30,000. Eventually 80% of car will be made in Argentina.

* * * *

WATCH FOR MORE MARRIAGES OF PAPER AND PLASTICS. Package companies are setting up divisions to exploit this field. One of first products: an acid-resistant corrugated carton. Also look for new package shapes. Latest are the "bax," a cross between a bag and a box, and triangular plastic shipping containers.

* * * *

SALES FINANCING CONTINUES TO EXPAND. New joint venture of American Express Co. and the U.S.A.'s C.I.T. Financial Corp., starting operations in Britain and West Germany, will finance installment sales of dealers and manufacturers.

* * * *

A QUICK REVIEW OF EXCHANGE, CREDIT, AND BUSINESS CONDITIONS

Country	Exchange Rate (units per $1, New York)			Government Reserves (gold & foreign exchange, millions)		Dollars in U.S. Banks	Conversion Delays / Collection Experience		Business Conditions
	5 April 1960		5 March 1960	latest month	year ago	(Millions)			
Argentina	82.75	Peso	82.50	$ 221.0	$ 177.0	$ 360.0	2 Mos.	Fair-Good	Fair-Good
Australia	• 2.23	Pound	• 2.23	1,226.0	1,181.0	110.0	None	Very Good	Good
Austria	25.65	Schilling	25.65	662.0	691.0	308.0	None	Good	Good
Belgium	50.00	Franc	50.00	1,248.0	1,475.0	152.0	None	Very Good	Good
Bolivia	12,000.00	Boliviano	12,000.00	11.4	6.6	25.0	4 Mos.	Fair	Poor-Fair
Brazil	190.00	Cruzeiro	184.00	434.0	440.0	152.0	3 Mos.	Fair-Good	Fair-Good
Canada	.9569	Dollar	.9501	1,867.0	1,920.0	2,318.0	None	Very Good	Improving
Chile	1.05	Peso	1.05	125.2	68.7	170.0	2 Mos.	Good	Improving
Colombia	6.65	Peso	6.75	225.0	181.0	222.0	2 Mos.	Good	Improving
Costa Rica	6.67	Colon	6.67	13.3	25.8	18.9	1 Mo.	Good	Good
Cuba	1.25	Peso	1.25	256.0	380.0	163.0	3 Mos.	Poor-Fair	Poor-Fair
Denmark	6.80	Krone	6.80	261.6	229.3	120.0	None	Very Good	Good
Dom. Rep.	1.00	Peso	1.00	38.1	51.2	36.0	None	Very Good	Good
Ecuador	16.67	Sucre	16.67	40.8	36.5	21.7	1 Mo.	Fair-Good	Fair-Good
El Salvador	2.50	Colon	2.50	39.7	58.1	51.0	1 Mo.	Fair-Good	Good
Finland	312.00	Markka	312.00	308.2	278.5	83.0	None	Good	Fair-Good
France	4.90	Franc	4.95	1,781.0	1,301.0	664.0	None	Good	Good
Germany	4.17	D-Mark	4.17	4,968.0	5,443.0	1,899.0	None	Very Good	Very Good
Greece	27.80	Drachma	29.41	210.4	189.9	188.0	1 Mo.	Fair-Good	Fair-Good
Guatemala	1.01	Quetzal	1.01	38.7	50.6	44.0	1 Mo.	Good	Improving
Honduras	2.00	Lempira	2.00	11.7	14.0	12.8	1 Mo.	Fair-Good	Improving
India	6.67	Rupee	6.67	665.0	674.0	113.0	1 Mo.	Good	Improving
Indonesia	200.00	Rupiah	200.00	332.0	236.0	146.0	3 Mos.	#L/C Basis	Poor
Iran	76.92	Rial	76.92	213.0	280.0	46.0	3 Mos.	Fair-Good	Improving
Iraq	• 2.70	Dinar	• 2.70	296.6	353.2	18.0	2 Mos.	#L/C Basis	Fair-Good
Israel	2.50	Pound	2.50	117.6	130.9	93.0	1 Mo.	#L/C Basis	Good
Italy	625.00	Lira	625.00	3,267.0	2,219.0	1,358.0	None	Very Good	Good
Japan	392.00	Yen	392.00	1,209.0	939.0	1,293.0	None	Very Good	Good
Mexico	12.35	Peso	12.35	384.0	395.0	425.0	None	Good	Very Good
Netherlands	3.77	Guilder	3.77	1,379.0	1,420.0	494.0	None	Very Good	Good
New Zealand	• 2.60	Pound	• 2.63	206.0	232.0	6.8	None	Very Good	Good
Nicaragua	8.00	Cordoba	8.00	12.4	19.5	12.5	None	Very Good	Good
Norway	7.14	Krone	7.14	246.7	227.3	95.0	None	Very Good	Fair-Good
Pakistan	6.50	Rupee	6.50	203.0	157.0	23.5	2 Mos.	#L/C Basis	Improving
Panama	1.00	Balboa	1.00	40.2	42.4	131.0	None	Very Good	Good
Peru	27.77	Sol	27.77	40.3	34.8	83.0	1 Mo.	Good	Fair-Good
Philippines	3.33	Peso	3.45	87.0	78.0	174.0	1 Mo.	#L/C Basis	Fair-Good
Portugal	28.17	Escudo	28.17	809.0	727.0	128.0	None	Very Good	Good
South Africa	• 2.76	Pound	• 2.76	419.0	333.0	62.0	None	Very Good	Good
Spain	60.00	Peseta	60.25	54.0	57.0	93.0	None	#L/C Basis	Improving
Sweden	5.17	Krona	5.17	368.0	487.0	151.0	None	Very Good	Good
Switzerland	4.33	Franc	4.33	1,889.0	2,036.0	973.0	None	Very Good	Very Good
Turkey	12.50	Pound	12.50	266.0	323.0	30.0	12 Mos.	#L/C Basis	Fair
U. A. R.	• 2.10	Pound	• 2.15	278.0	402.0	25.0	3 Mos.	#L/C Basis	Fair
U. K.	• 2.8090	Pound	• 2.8039	2,780.4	3,138.8	993.0	None	Very Good	Very Good
Uruguay	11.11	Peso	11.11	180.0	180.0	62.0	2 Mos.	Poor-Fair	Fair
Venezuela	3.34	Bolivar	3.34	693.0	1,105.0	250.0	1 Mo.	Fair-Good	Fair-Good

•U.S. Dollars per Pound. #Most Exports by Letter of Credit

The Editors

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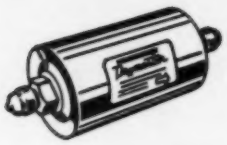
one dependable source for quality products for air conditioning, refrigeration, plumbing and heating

refrigeration and air conditioning

For virtually every refrigeration and air-conditioning need, Mueller Brass Co. offers high quality components, including filter-driers, strainers, valves, heat exchangers, tube and fittings, manifolds and service accessories.

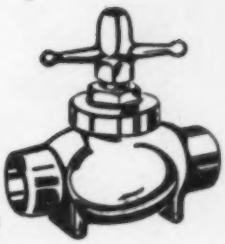


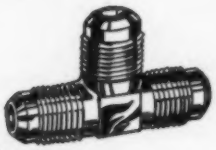
Drymaster®

Filter-Driers provide perfectly balanced filtering and drying to meet every installation need. Complete range of sizes and capacities.

Globemaster

Packed line valves, available in straight-thru and angle types, are carefully engineered and constructed to give long, trouble-free service.





FITTINGS

Mueller Brass Co. produces a complete line of both solder-type or flare fittings in a range of sizes and styles to accommodate every type of refrigeration installation. Manufactured from seamless copper tubing, forged brass or brass rod fabricated in our own mills.

Sightmaster

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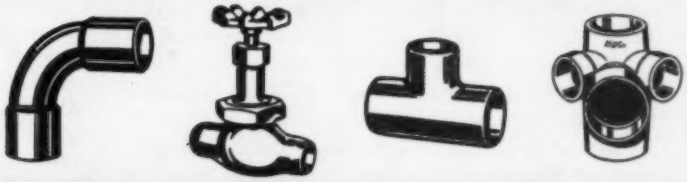

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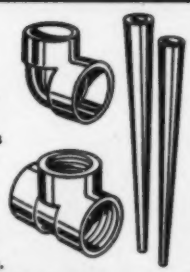

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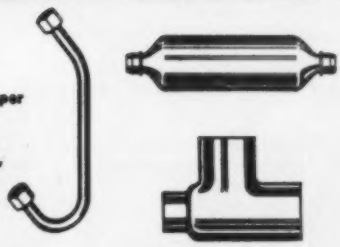

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MAY 1960

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International Management Digest.

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electric typing:
an investment in office efficiency

The cost of your typing stations may be higher than it need be because of the limitations of the item that costs the least—the typewriter. If you are not now using electric typewriters, output is probably limited because the work cannot be turned out quickly enough and some jobs have to be typed twice to get the required number of carbons.

Many businesses have eliminated these deficiencies by modernizing typing stations with electric typewriters. The difference in cost on the average is little more than 1% of the total typing station investment. Increased output alone more than makes up this difference.

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IBM WORLD TRADE CORPORATION **IBM**

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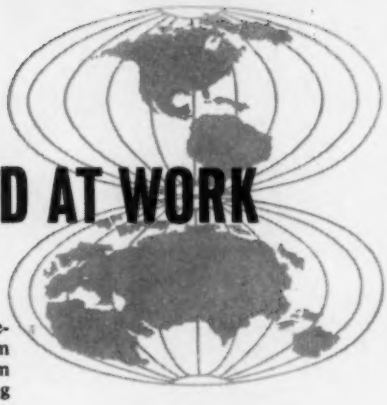
NEWS AND VIEWS OF THE WORLD AT WORK



Milwaukee, Wisconsin, U.S.A.: *A promising source of power* was demonstrated recently in this Allis-Chalmers research vehicle. Electricity generated in fuel cells from a mixture of gases, largely propane, provided the power to pull a multiple-bottom plow. Fuel cells—offering twice the efficiency of today's engines, without any moving parts, noise or odorous fumes—may power tomorrow's tractors, trucks and buses, homes and factories, even space vehicles. Not yet commercially available.

Through overseas factories and license agreements with manufacturers abroad, Allis-Chalmers basic machinery for major industries is available in leading world currencies. Allis-Chalmers International, Milwaukee 1, U.S.A.

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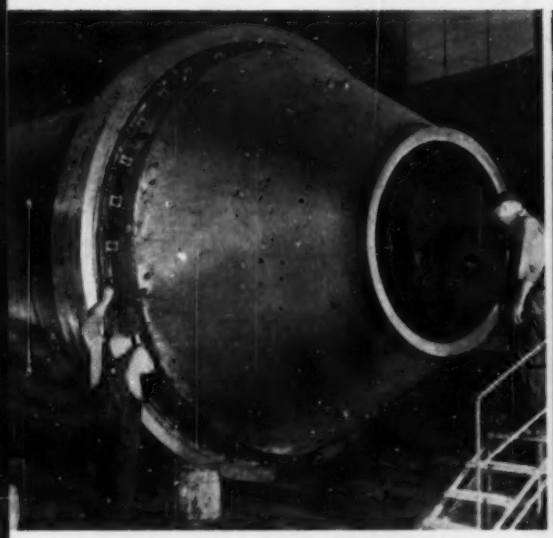
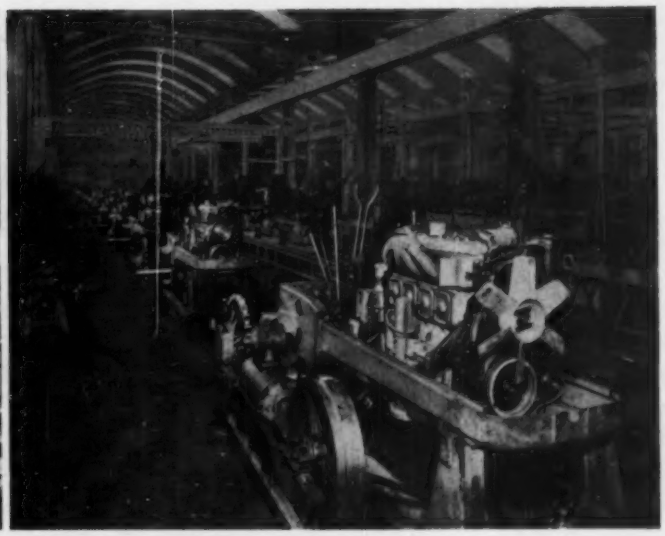
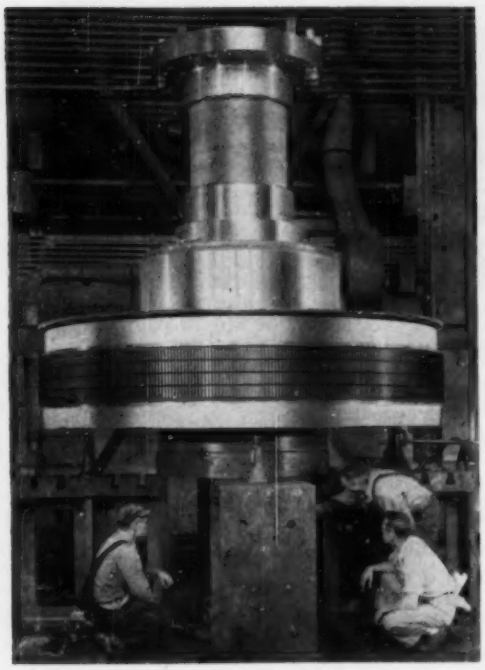


This rotary ore scrubber, believed to be the world's largest, is now floating on a barge in French West Africa where it will remove clay and slime from phosphate ore at a rate of 400 metric tons per hour. Made by Allis-Chalmers, the scrubber is 35 feet long, 11½ feet in diameter, and weighs 165 tons.



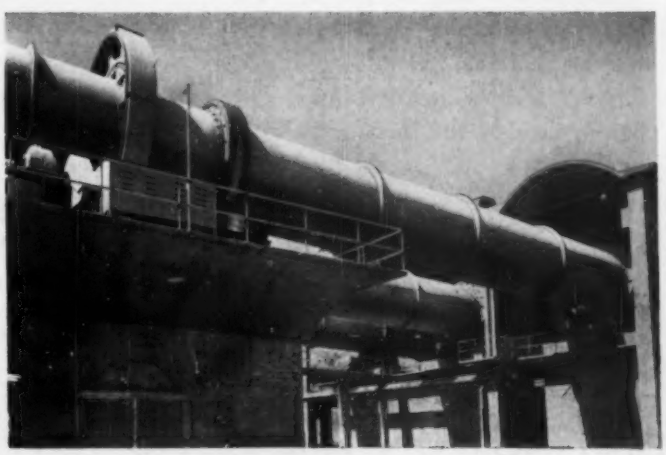
To provide better service to crawler tractor users in European Common Market countries and surrounding nations, Allis-Chalmers International recently purchased a plant at Cusano, Italy. This plant produces crawler tractors and mounted equipment for agricultural and construction purposes.



Workmen inspect a shaft and commutator for one of 12 generators being built by Allis-Chalmers for a nuclear fusion device called the C Stellarator. Princeton University scientists will use the facility to study the control of thermonuclear reactions for the generation of electric power. Allis-Chalmers and Radio Corporation of America are building all components for the unit.

Complete cement plants of the type shown at right will be built by Allis-Chalmers for two Argentine companies. The new plants will add 770,000 tons per year to the cement production of Argentina.

92 huge Allis-Chalmers motor scrapers and crawler tractors are helping the Government of Brazil build the 2100-kilometer Belem-Brasilia highway in record time. Nearly one quarter of the road's total length must be cut through the dense rain forests of the Amazon Valley.



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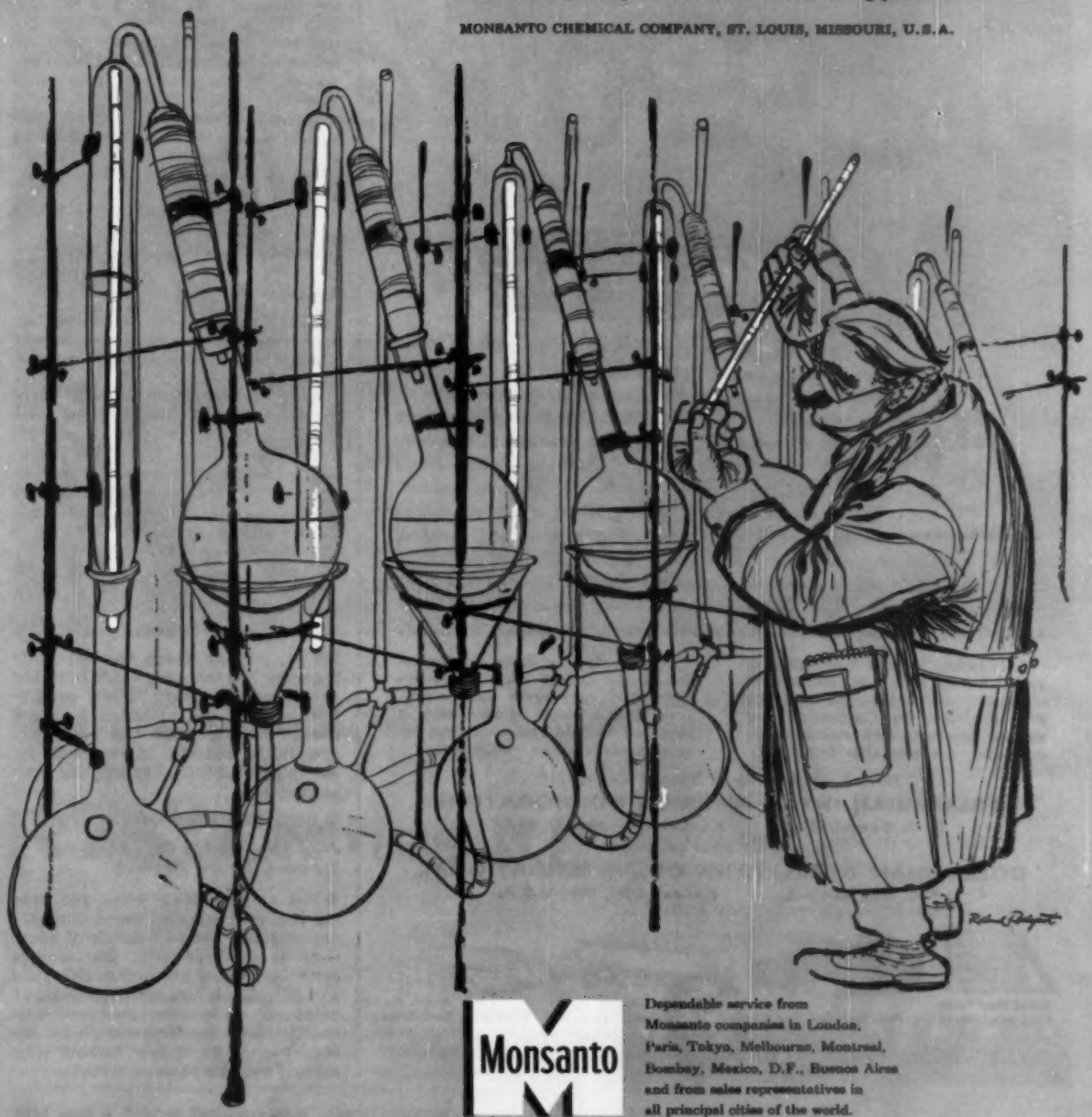

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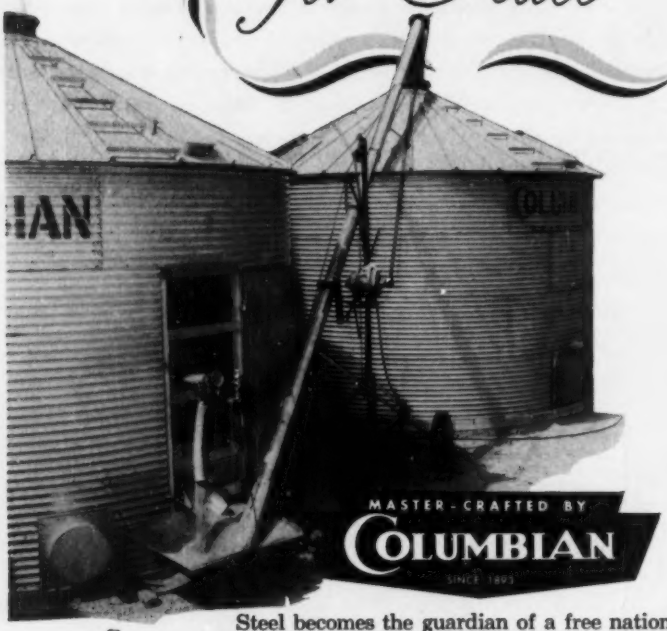
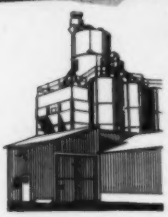
STEEL *for Peace*





Steel becomes the guardian of a free nation's prosperity, when master-crafted by Columbian into equipment for storage and transportation. On the farms of many nations, Columbian Red Top Steel Grain Bins protect stored grain against the enemies of weather, fire, vermin and spoilage. Columbian Bolted Steel Grain Tanks and Elevators provide security against the threat of scarcity. Strong and easily erected Columbian Steel Buildings become warehouses, garages, offices, storage and auxiliary buildings for agriculture and industry. The free world's oil is stored in Columbian bolted and welded steel tanks. It is transported in Columbian semi-trailer transports and truck tanks. Yes, peaceful logistics is a science and a Columbian specialty.

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● READERS' PAGE

Food Fair at Aalborg

Sir . . . I am sure that your February list of international trade fairs brought you piles of letters telling about fairs not mentioned in the list. But still I do not hesitate to tell you that the world's largest exporter of refined agricultural products is mounting, for the first time, an international food exhibition, namely the Danish Food Fair which is going to take place in Aalborg, June 3 to 12.

Per Abildgaard
Danish Agricultural Mktg. Board
Copenhagen, Denmark

Puzzling Problem

Sir . . . Congratulations on "How Much Bribery? A Close Look at Business Morals" in your March issue. This is a courageous and frank statement on one of the most puzzling problems in international business operation. As you point out, firms tackle this problem in different ways, and it takes a substantial amount of courage to adhere to a higher standard than one's competitors. It is encouraging to have you report that standards are in fact improving.

Prof. Emile Benoit
Graduate School of Business
Columbia University, New York

Anybody for Taipei?

Sir . . . Many promoters of enterprises and I are proud to be the readers of INTERNATIONAL MANAGEMENT around the world.

Recent surveys show that manpower problems in Western Europe and North America are increasing intensely. In order to increase cooperation between high-wage and rich-manpower countries, many promoters of enterprises here in Formosa are willing to establish manufacturing service systems through cheapest wages.

You-Yen Yang
Taipei, Taiwan

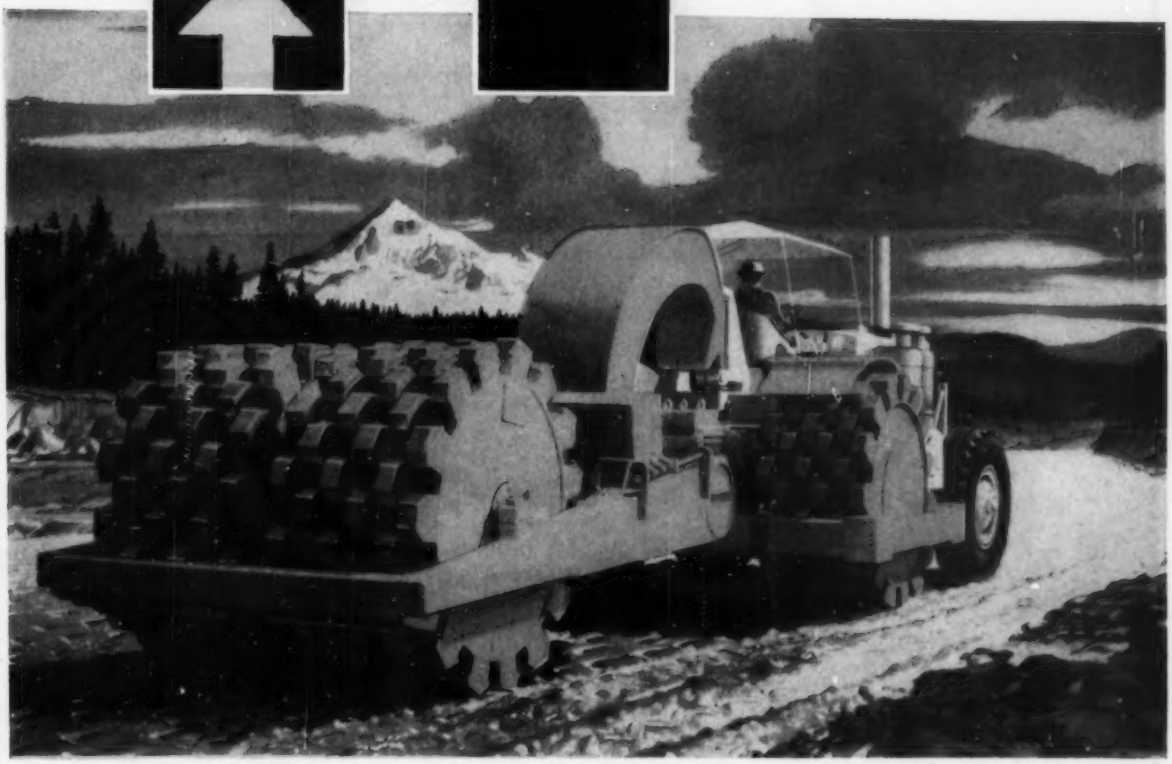
What Kind of Rubber?

Sir . . . In your March American Letter there is a sentence which is rather surprising. You say: "World production of synthetic rubber will exceed that of natural rubber this year." . . . I would be grateful if you could let me have some figures supporting your assumption.

F. Johnstone
Director
John Heathcoat & Co. Ltd.
Tiverton, Devon, England

● Not so surprising when you note the immense surge of world synthetic capacity over the past couple of years —up as much as 60%. Our sources estimate natural production this year at 1.9- to 2.0-million tons, synthetic at perhaps 2-million. Our statement may not have been qualified enough, but we expect synthetic to pass natural very soon, if not this year.—EDITOR

HYSTER



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Electric Finishers
Electric Orbital Sanders
Electric Line Sanders
Portable Electric Polishers
Electric Bench Polishers
Electric Tappers
Electric Screw Drivers
Electric Nut Runners
Electric Nibblers

Electric Hand Shears
Electric Jigsaws
Electric Circular Saws
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Drill Chucks

Electric Resinoid Sander,
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Electric Grinder,
Type EBC

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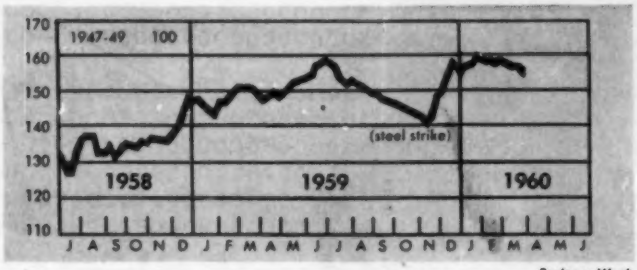
Business at a Glance



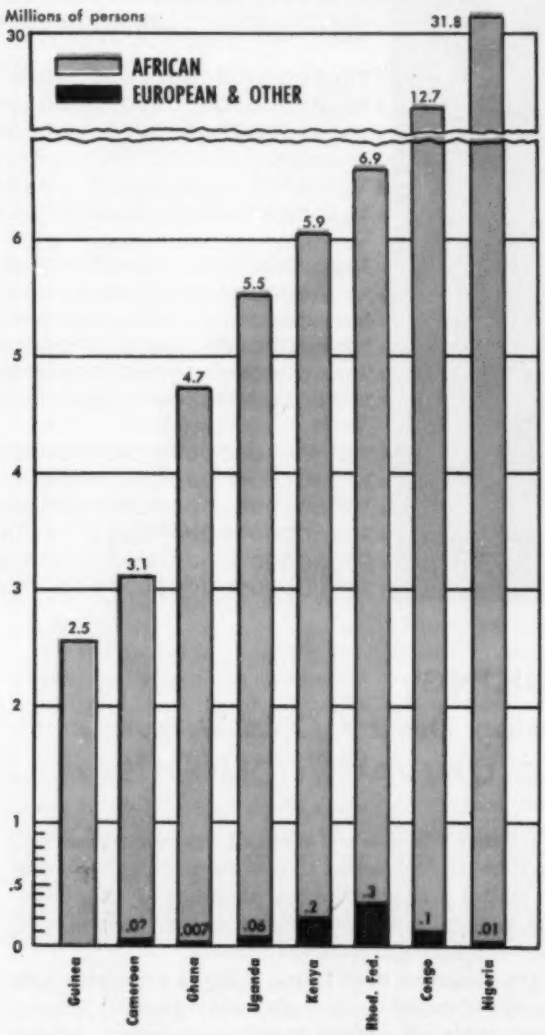
Business Week

U.S. Business Trend

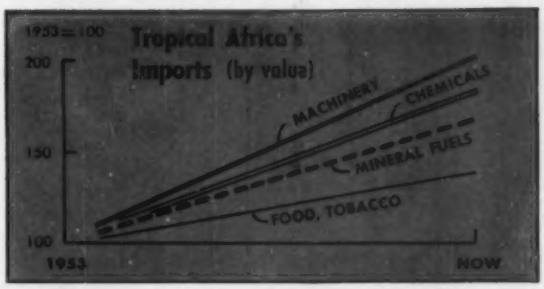
The Business Week Index (left) looked sickly early in April—mainly because steel production was moving below 90% of capacity and automakers found that their dealers' inventories had gotten overfull in the bad weather months of February and March. Neither industry is enjoying a boom —but they do not face a slump, either, and already there are signs of Spring buying in auto showrooms.

• CHARTS OF THE MONTH

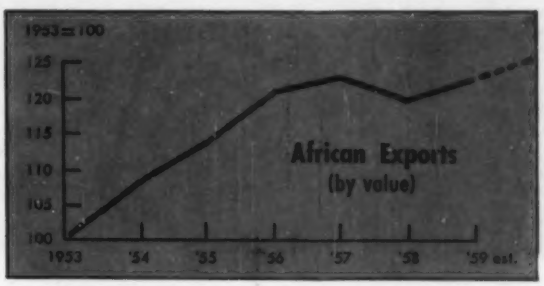
A QUICK LOOK AT THE AFRICAN ECONOMY



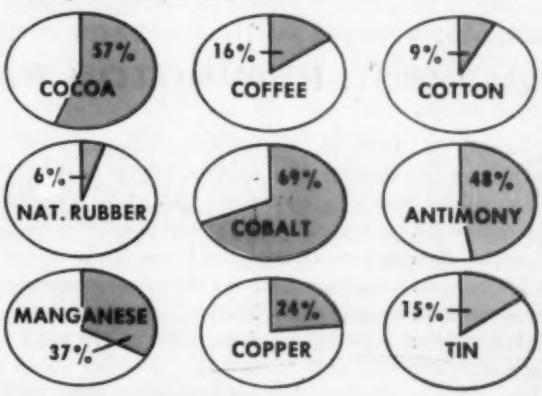
Tropical Africa's population is about 170 million—growing 1.6% yearly. Here are some key nations .



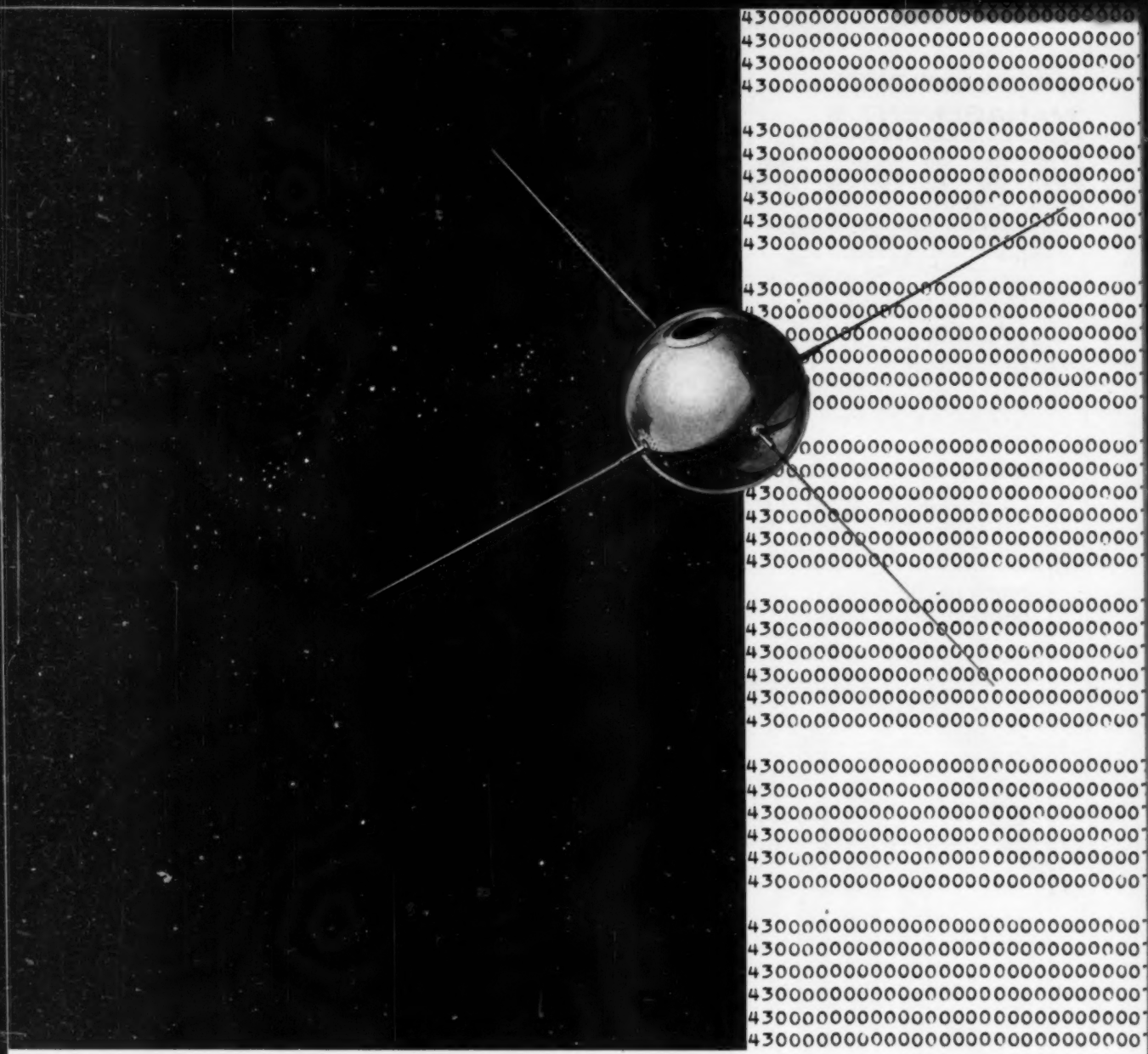
Africa's economic development promises expanding markets for world business — especially for capital goods.



African exports also are rising, despite depressed world raw material prices (note 1958). For Africa's share of world production, see charts below:



Data: United Nations, U.S. Dept. of Agriculture, Commodity Research Bureau



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PLACE: Wright Air Development Division, Dayton, Ohio, U.S.A.

EQUIPMENT: **REMINGTON RAND UNIVAC®** COMPUTER

On January 31, 1958, the United States announced the launching of its first man-made satellite. Within hours its precise position was being continually tracked by a giant Remington Rand UNIVAC computing system installed in the Wright Air Development Division in Dayton, Ohio. This feat involved predicting the course of a tiny object streaking around the earth at more than 70,000 miles an hour, in a complex elliptical orbit varying from 1587 to 219 miles from earth.

UNIVAC data-processing equipment predicts the trajectory of your business sales curve, too. Equipment using many of the same principles and advanced components developed from the satellite-tracking UNIVAC computer, provides data for making executive decisions, processing payrolls, inventory, billing, cost control, and other essential business processes with electronic speed and accuracy.

The Remington Rand UNIVAC computing systems are an example of the thousands of advanced engineering achievements enabling Remington Rand to serve business, science and government throughout the free world.

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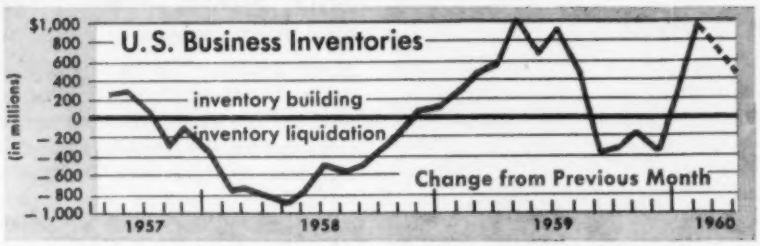


Month by month, inventory changes record a "fever chart" of business sentiment —the '57–'58 recession, the slow return of confident buying, the '59 steel strike, then a quick re-stocking. Now what will happen?

World Businessmen Are Cautious

"I'VE NEVER SEEN them so cautious about inventories," says an experienced U.S. economic observer. "Usually American businessmen will take a little extra when they can get it."

He was commenting on the conservative mood of U.S. industry over the past few months. Earlier, everyone had expected a surge of stock-building, well beyond merely replenishing steel supplies, that would assure booming business through June. But after the initial December-January restocking (chart), inventory accumulation has slowed. There is no rush. Nor does anyone expect a rush.

Moreover, INTERNATIONAL MANAGEMENT's correspondents in other industrial nations found, with few exceptions, a similar conservatism. Businessmen are buying—but selectively. "Stocks can cost an awful lot of money," comments an Englishman, "and even if business is booming, you can still keep them low if you try."

• **Impact** — Taken together, the countless daily decisions on whether to add or cut stocks of materials and other necessities—and by how much—have an immense impact on world business. A rush to build stocks beyond current needs sends prices up, speeds the pace of a boom—sometimes to the danger point. Similarly, inventory liquidation has a cumulative effect and, feeding on itself, can cause severe recession.

Right now, most industrial nations are engaged in calm, controlled stockbuilding. In **France,** for example, businessmen are optimistic about the immediate prospects, and have been building up their very low inventories (January imports were up 40%, mainly in raw materials). French managers expect prices to increase, but only slightly, and their buying is just enough to meet the expected rise in sales.

The **Dutch,** too, are rebuilding stocks, but once again, only enough for anticipated needs for the year's promising business. The rate of accumulation in 1960 is estimated at twice last year's; even so there is little excess over what Netherlanders consider essential supplies. **Germans,** remembering how depleted stocks cost them some orders last year, are ordering briskly. But many of the orders placed "just to be on the safe side" could be cancelled quickly if there is the slightest slackening in business.

All the evidence suggests that **Britain's** inventories are rising rapidly. But many economists believe the process is hardly more than a reflection of current good business. British management is acting as if it believed commodity prices would trend upward (maybe 1% to 2%), but it does not seem the least bit nervous about it.

In **Japan,** inventory levels seem determined less by the free play of management decisions than by government import controls. Stockbuilding is at a high rate now, thanks to last year's export boom which filled the Bank of Japan's exchange reserves. Today, with liberal import licensing, businessmen can afford to indulge their speculative habits.

Not so in the U.S.A.: Business is running on a much shorter inventory/sales ratio than usual: Steel stocks, for example, seem barely adequate for current needs. A feeling of mild uneasiness has replaced earlier enthusiasm about 1960 prospects, and businessmen are keeping tight rein on inventories (page 1).

A number of factors color today's inventory thinking. For example:

—Inflation fears have waned, especially in the U.S.

—World supplies of most raw materials are comfortable. And manufacturing capacity seems ample in relation to sales forecasts.

—Freer-flowing world trade helps calm fears of shortages.

—Surging output of synthetics, greater experience in materials substitution (IMD, Mar, page 19), has become a powerful brake on sustained commodity price rises.

—Businessmen are becoming more adept at economical inventory management. They are learning how to measure and control stocks; they are refining their production planning. Decisions can be made faster, and many companies have found they can get along with substantially lower inventories. Everywhere the influence of the financial men, the cost accountants, is growing.

• **Enigma**—Despite all this, inventory sentiment remains mercurial, enigmatic. One Londoner of the "old school" insists that for all their new emphasis on inventory management, businessmen would be quick to "kick the cost accountant out the window" and start buying if they got really anxious about shortages. ●

Investors are optimistic, but South African tension may give them pause.

NINETEEN-SIXTY is the "Year of Africa," so the saying goes. And no area in the world presents more risks and uncertainties to businessmen than the huge strip of "Tropical Africa" south of the Sahara and north of the Union of South Africa.

Yet the lure of new opportunities created by political change, expanding markets, and raw material reserves is tempting businessmen of all nations to try their luck.

Change moves at a breathless pace. Faster than anyone expected colonies are becoming fully independent (see map left), "on their own" economically. If you had told most African experts a year ago that the Belgian Congo would achieve independence next month, they would have called you mad. So might most of the Congolese independence leaders themselves.

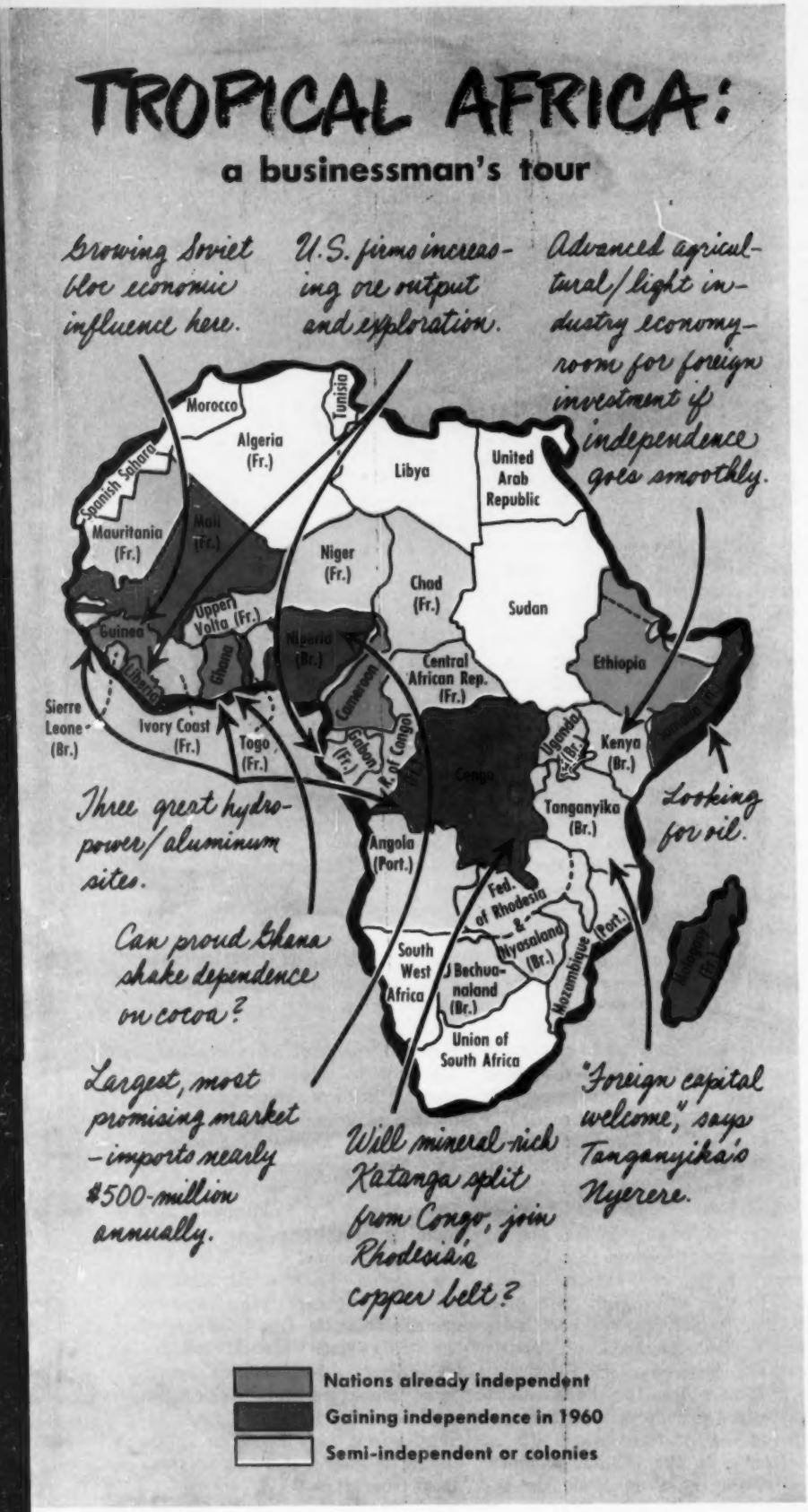
• **French, Too**—This year, more territories will gain independence within the French Community. The Malagasy Republic is setting the pace, with the Mali Federation following close behind.

Somalia is on its way to freedom. And there are political rumblings in Angola and Mozambique, even though the Portuguese insist "there is no troube here."

Nigeria, most populous of the emerging nations, has had the benefit of long, careful British tutelage for self-government. It has a good start for independence, due later this year. But in British central and East African lands, where Europeans have set down deep roots, independence will come harder. Kenya and the Rhodesian Federation are centers of tension.

These East African lands are especially affected by the grim political crisis in South Africa. There is little doubt, as INTERNATIONAL MANAGEMENT went to press, that the trouble in South Africa has influenced foreign investors' feelings about Africa as a whole (see p3), particularly in the Rhodesias.

The Union now has entered a new, crucial stage, with the Pre-



Takes a Careful Look at Africa

toria government shattering the Union's European-dominated isolation from the rest of Africa. Main worry for foreign businessmen now is that—despite any temporary improvements—the Union's domestic affairs are not likely to improve. And political strife could last another five to ten years.

I. Climate of Opportunity

As one Briton puts it: "The Africans need the foreigner more than the foreigner needs them—for economic growth. Africans are richer in resources than in technical skills."

West Africa starts nationhood with some obvious advantages over East Africa. Its mineral and agricultural resources are large. (For a brief glance at Africa's population and trade, see p 15.) East Africa has less—and few observers think there's a great deal to be tapped. Kenya, for instance, is mostly coffee, local farming, light industry—and nothing else. Tanganyika, British trust territory soon to reach independence, has diamonds—and little else. In Somalia, there are nomadic tribesmen, lots of scrub land—and possibly oil.

The Congo, like West Africa, is rich in resources—copper, asbestos, nickel, oil, iron ore, timber, palm, and rubber.

• **Businessmen**—Large European firms, who have been developing these and other African resources for years, are adapting their policies to the demands of change. Unilever's United Africa Co., Ltd., probably the largest company in all Africa in sales (about $850-million annually) is replacing European employees with Africans, wherever possible—though some critics say it is "a bit late in coming."

U.A.C., as well as other companies, is enlarging its activities beyond the usual trading and mining, trying to help the new nations to diversify output and to protect themselves by broadening the base of their business.

Take the case of the Congo's giant Union Miniere de Haut Katanga: Up to now, it concentrated mainly on mining. Now it is beginning to go into cement works, livestock breeding, flour mills, agricultural development.

• **Welcome** — Also the old-time companies are welcoming newcomers. For one thing, the big firms are obvious targets of nationalist Africans and new investors might help relieve some of the pressure. For another, there is an immense need for capital, and more of it than the old-line firms can muster from their own resources. You see this attitude among the Congo's big Belgian Trusts, who know their position will be substantially weakened after independence.

Consortia are another approach—such as the FRIA aluminum group in Guinea. By pooling the risk and the responsibility, U. S., French, British, West German, and Swiss companies hope to keep their position in Guinea by guaranteeing outlets for Guinean ore which Communist countries, loaded with their own production, could probably not match on a continuing basis.

It is clear that outside businessmen consider the opportunities sufficiently tempting to justify taking risks in Africa's political turmoil. Inevitably, the most obvious opportunities for some time will be in the extractive industries—rich iron in West Africa, bauxite in Guinea, Ghana, the Congo, as well as large new deposits of copper and other minerals.

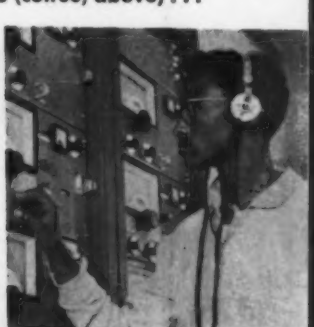
• **Small Business**—But there also are many less-publicized opportunities for very profitable investment in marketing and distribution services, and light industrial facilities of all kinds. These small and medium-size investments are less vulnerable politically; they should attract more interest from now on. An example is the ultra-modern hotel recently built in Monrovia by Swiss and Israeli interests. The Liberian government helped out by leasing a number of rooms on a long-term basis.

And do not underestimate agriculture, where the introduction of modern methods could assure dramatic increases in yields. Also, since Africans are becoming increasingly diet-conscious, there are good prospects for fish- and livestock-raising. Foreign skills and machinery also are needed by the expanding timber industry.

II. Hospitable—So Far

The rapid recession of European

The economy, based on minerals (copper) and agriculture (coffee, above) . . .



. . . badly needs leaders (Nyerere, left) and skilled technicians in all fields.

colonial power reveals differences among the African leaders' attitudes toward foreign capital. Economic policies in Tropical Africa range all the way from the complete open-door welcome extended by President Tubman's government in Liberia, to the Touré regime in Guinea, which tends to regard foreign capital with glowering suspicion. And somewhere in between there is the mild state socialism of Nkrumah in Ghana.

By and large, the attitude is hospitable—so far. These countries, of course, do insist on some priority to essential industry. In some cases, they tend to favor local participation—through capital or the presence of Africans on boards of directors (expected to become a widespread practice soon). But they rarely say: "This company must be run by the government."

• **Help for Business**—Most of the emerging countries have a Ministry of Commerce & Industry that does its best to help foreign businessmen. Some are beginning to copy the other nations' tax incentive programs. A few are trying to help themselves financially: Both Ghana and Nigeria are planning to establish local money markets for government securities.

The success of Europe in building a new basis for economic cooperation with its former African dependencies will affect the investment climate profoundly. The Eurafrica concept—that of an economic union to replace political domination—is Europe's answer to the collapse of colonial control. But there are doubts in both Africa and Europe as to whether a mutually satisfactory bargain can be struck.

• **Subsidy?**—The Africans question whether Europe is prepared to offer them more capital, larger markets and higher prices for their goods, adequate supplies of manufactured goods at fair prices within a preferential relationship. The emerging African countries say they will no longer "subsidize the European standard of living" as they insist they have done in the past.

Europe has some bait to offer. It can provide markets, capital assistance. The European Common Market has established a $500-million fund for economic development primarily in Africa.

On the European side, there are some doubts, too. Some Europeans believe that any economic relationship Africa accepted would involve taking on an economic liability which would outweigh the advantages. German businessmen, for example, are especially hesitant. They believe that Congo independence, for one, is coming too early, and are afraid that the inexperience of African leaders facing severe political and economic pressures will bring policies that could jeopardize European investments.

III. What Role for America?

Regardless of how Eurafrican relations evolve, the U. S. A. is assuming that independence will lead to at least some withdrawal of European economic influence. Washington is worried that in a number of places dangerous vacua will emerge —which the Soviet Union and its satellites are seeking to fill. Guinea is the prime example.

• **Capitalism?**—The U. S. A. has advantages and disadvantages in approaching Africa. It is not tainted with a colonial past. Also, Washington finally has taken a strong position on South Africa's racial policies. Yet the U. S. A. is

Africa / Minor Memos . . .

. . . Do not under-rate top Africans, says a Briton: "Many are skilled, well-informed negotiators--and they know local business conditions well."

. . . Up-country in the Congo you'll note the stink of dried fish, imported from the Canaries. Not enough local food. Fish-farming, says a Belgian, could be a useful, profitable venture.

. . . Watch the Israelis. They've found a welcome in Nigeria, Ghana, Liberia, other areas for construction work, educational and training activities.

. . . Arabs, too. Lebanese bankers are setting up branches in West Africa.

. . . Be wary, warns a cautious American, of any large African investment that cannot be amortized over three to five years at the outside.

. . . "Our government and United Africa Company get along fine now," says a Nigerian. "If there's friction, it is between UAC and other traders."

. . . Among French areas, the Ivory Coast is especially rich in investment opportunities. Even poor Mauritania has a new $66-million World Bank loan for ore development by Europeans.

. . . An international finance man: "Whether it will prove possible for Africans to have their independent political cake and lots of European economic help too is an open question."

. . . On the eve of freedom, 75% of Guinea's trade was with the franc zone. Now the majority is with the Sino-Soviets. But the importance of Western markets for Guinean minerals may prevent a complete break with the West.

viewed with some suspicion by many African leaders as the leading champion of "capitalism," a word which Africans see as synonymous with colonial "exploitation."

So far, U.S. government policy has given a low priority to Africa; Washington has relied upon its European allies as the logical donors of capital and technical assistance, as Africa's logical customers and suppliers.

Africa now has a much higher priority. The U.S. will encourage an increased lending to Africa through the international financial agencies, and there may well be more direct U.S. government assistance. Meanwhile the U.S. hopes that private American businessmen will play a larger role.

• **Private Investors** — There is the prospect that American private investors will venture into Africa on a larger scale (investments total only $500-million to date, much of it in the Union of South Africa). In the past, both colonial governments and the established European firms tended to discourage American businessmen. This attitude is changing rapidly—and the change is particularly obvious in the Congo. Eighteen months ago, American inquiries about investment in the Congo were likely to get a cold reception. Today, the Belgians appear anxious to encourage U.S. investment.

U.S. private funds—such as the Ford and Carnegie foundations and the Rockefeller brothers—have sent missions to Africa, and U.S. businessmen are busily traveling about to size up the market. Nigeria House in London, for instance, notes a big increase in American inquiries.

• **Optimism**—There is, in fact, a mood of cautious optimism about Africa's long-term outlook in the U.S.A. Most Americans see a strong, natural base for cooperation between independent Africans and the West; they are now searching for ways in which they can help build the confidence necessary for such cooperation. For there is a growing realization among African leaders that, while they are successfully ridding themselves of outside control, they will need outside help if they want to hold on to their continent and make it grow and prosper. ●

It's Getting Crowded . . .

. . . with autos, say some. But most manufacturers are optimistic, and are improving their facilities and intensifying their sales efforts.

AFTER WEEKS of checking, cross-checking, and totting up, McGraw-Hill's *American Automobile* this month releases its annual census of the world's motor vehicles. As of January 1, 1960, say the census-takers, there were 117.8-million cars, trucks, and buses—5% more than a year before—cruising on the world's highways.

Of that total, nearly 91-million were cars. Their numbers have grown by 5½% in the past year, compared to 4½% between 1958 and 1959. These figures are registrations, of course, and the increases do not reflect the full surge of new production because a large proportion of output is going to replace old, worn-out vehicles. Last year, 59% of world output went for replacement.

• **Explosion**—This four-wheeled population explosion (in Western Europe, an increase of 10% or more annually for three years now) presents immense opportunities for manufacturers, raw-material suppliers, and purveyors of everything from roadside refreshment to tire-recapping tools. Those who view it with alarm are mostly the traffic engineers and government finance men who must somehow plan and pay for roads to handle the rush.

If the expansion plans of most automakers are a guide, the rush will continue. And the most determined optimists seem to be found in Britain. Having just completed a $420-million investment in new plant, the British motor industry now expects to lay out another $475-million over the next few years, and double production by 1963 or 1964. In Germany, Volkswagen's Heinz Nordhoff hopes to pass the million-vehicle-yearly mark soon (IMD, Feb); in France, Renault plans a 30% increase in capacity; Italy's Fiat hopes to double output in two years' time.

• **U.S. Plan**—The latest estimate of the U.S. industry's capital spending plan reveals a staggering 59% increase over last year. This investment does not appear to be primarily aimed at increasing capacity, rather at making present facilities more efficient and economical. But overseas, the large U.S. companies are still expanding: General Motors is now putting another $200-million into its foreign plants.

Only a few hardy souls will admit to doubts about the current motor expansion. One, strangely enough, is Pierre Dreyfus, chief of the highly-successful Renault, who was quoted as saying that unless these very ambitious expansion plans were scaled down, there could be trouble in the European motor industry.

Even the most confirmed optimists admit that competition for the favor of more choosy, better-financed consumers is becoming more intense. Auto executives agree that the times call for much more vigorous sales and advertising, better service facilities, greater emphasis on styling and economy.

• **Sales Slowing?** — A current concern is the U.S. market, where European cars have had signal successes. But since last October, when the smaller U.S. "compact cars" appeared (IMD, Nov. '59), imported car sales have slowed somewhat. Moreover, at least one of the American "Big Three" is preparing an even smaller "compact"—to compete directly with the VWs, Dauphines, Fiats. All this has stimulated the Europeans to greater effort. And do not forget the Japanese. Though late starters, they are aiming at a 51% increase in vehicle exports over the next 12 months, much of it to the U.S.

Elsewhere in the world, the auto industry expects growing markets—though requiring years of patient building-up. Talking of the vast auto-less populations of Asia, Africa, and parts of Latin America, one British businessman remarked that when they get their industrial revolutions well under way, "then we will have the biggest automotive market ever!" ●

More Sugar from More Countries

New exporters face old in the two great markets, as the sugar industry expands everywhere.

WHEN CUBA made an unexpected sale of sugar to China or the Soviet Union in recent years, the news usually brightened every segment of the world industry. Such a sale often was just what was needed to correct world inventories and move prices higher.

Now it has happened again—a five-year, 5-million-ton contract with the Soviets, an 80,000-ton sale to Red China. Yet prices moved irregularly. They remain low, even though drought has substantially cut down European beet sugar production this year.

• **Question?** — The Cuban-Soviet pact raised too many questions, reports Lamborn & Co., world sugar brokers:

What will Russia do with 5-million metric tons of Cuban sugar? It is four times as much as it received from Cuba during the last five years. Will all of it be used to increase Soviet consumption? Or will part of it be sent to China and other countries?

If Russia has promised not to re-sell Cuban sugar, will it instead unload Soviet beet sugar on the world market? And just what effect will the five-year contract have on Russia's elaborate program for building up its own beet sugar industry?

The Cuban-Soviet pact must be studied against the background of the growth of the world sugar industry. Not only is more sugar being produced—three times as much as 50 years ago—but more countries are contributing to this output.

World sugar demand also has been increasing steadily — sometimes faster than supply, sometimes slower. Part of this has come from population growth, but another major part from rising living standards. Now, per capita use will have to continue to go up—especially where little sugar is consumed today—as the industry expands everywhere.

I. A Changing Industry

Practically every country on earth today is spending large sums of money to create a sugar industry—or revitalize an existing one—and to find means of getting more sugar per unit of land. If a nation cannot grow cane, it grows sugar beets. Countries that imported sugar now are becoming self-sufficient. In fact, many are looking for markets for their surplus.

Look at Mexico. The giant cane factories that have gone up there during recent years have increased production from 800,000 to 1,500,000 metric tons over last ten years.

• **Bigger Factories** — Brazil has been moving at a similar pace, increasing output from about 1.9-million to 3.2-million tons in the past decade. Increased output also has been coming from the modernized cane factories of Dominican Republic, Venezuela, and India.

The beet sugar industry—which accounts for about 42.5% of the world's 50-million-ton output—also has been growing fast. Turkey has acquired a modern beet sugar industry. Western Europe is producing 20% more sugar than it did ten years ago, and the Soviet Union has doubled production—from 3-million to 6-million tons.

All of this increased output has not come from bigger mills or more land. Sugar technology has advanced. Agronomists are breeding higher-yielding varieties of cane and beets, and technologists are improving methods of harvesting and processing the crops.

• **Higher Yields** — In the U.S., beet farmers now get almost twice as much sugar from a hectare of land as they did before the war. What is more, they get it with far less effort and far less manpower. Field operations now are largely mechanized, and factories use the latest processing and control instrumentation.

As a result, the U. S. beet industry has grown both in size and in strength. Though it is not a major factor in the world market, its efficiency is studied and copied everywhere. And its efficiency gives a powerful argument to U. S. congressmen who want to keep it growing—even if that be at the expense of sugar imports.

FREE WORLD MARKET 1960

Supplier	Metric Tons
Cuba	2,585,000
Taiwan	750,000
Dominican Republic	677,000
Brazil	550,000
Peru	490,000
Indonesia	400,000
Czechoslovakia	275,000
Poland	220,000
Soviet Union	200,000
Mexico	75,000
All others	360,000
Total	6,582,000

* Portions reallocated

U. S. MARKET 1960

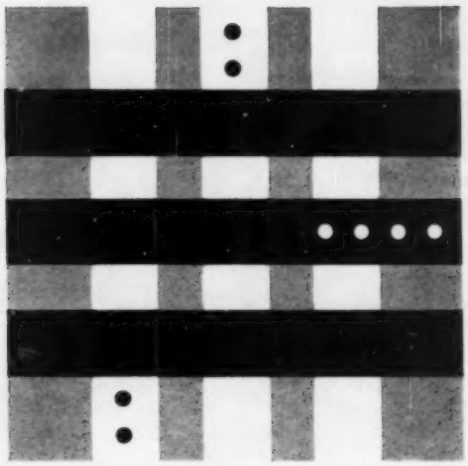
Supplier	Metric Tons
Domestic beet	1,853,436
Domestic cane*	2,701,065
Cuba	2,829,527
Philippines	888,860
Peru	86,643
Dominican Republic	73,881
Mexico	58,782
Nicaragua	12,722
Haiti	6,362
Taiwan	3,287
All others	11,335
Total	8,525,800

* Inc. Hawaii, Puerto Rico, Virgin Islands.

II. New Trade Patterns

Take a close look at the two charts at left for a key to how expanding national industries affect the flow of sugar from country to country. These two markets—the U.S.A. and the "free" world market—get most of the world's exportable sugar. Much of the rest is consumed in the producing country, or goes to Britain under the Commonwealth Sugar Agreement.

Substantially all of Cuba's sugar goes to these two markets. And in these markets it meets the exports of its tough, fast-growing competitors—Brazil, Mexico, Domini-



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Independent of whatever working principle is used, the speed and efficiency you demand of your organization is only possible with the aid of modern office machines.
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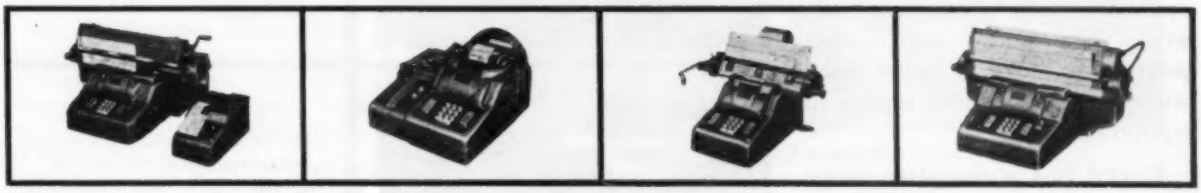

Efficient, easily operated, economical — these are the foremost characteristics of the Addo-X model 2341, favourite among adding machines.
Multiplier-memory, separate keys for short-cut multiplication, symmetrical key-board with Feather Touch and single-functioned, interlocking keys as well as all the other carefully tried Addo-X features give unprecedented reliability and speed. The Addo-X adding machines are also available in Sterling Models.

Addo-X Model 2341

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Rear-Dump "Eucs" have payload capacities of 10 to 50 tons—are powered by engines of 132 to 670 total h.p. . . . have loaded speeds up to 41 mph.

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Leading contractors, mines, quarries and industrial users of heavy earthmoving equipment the world over have standardized on Euclids for tough off-highway hauls. They know from years of experience on their own operations that "Eucs" get more work done every shift — that production cost is lower than with other types and makes of equipment.

Euclid has a complete range of sizes and models to fit every job requirement — rear dump and bottom dump haulers, self-powered scrapers and the world's most powerful crawler tractor. Your Euclid dealer will be glad to provide a production-cost estimate on your present or planned operations — be sure to see him before you replace or add to your equipment fleet — and have him show you why Euclids are your best investment.

Bottom-Dumps carry payloads of 13, 17 and 25 cu. yds. struck . . . are powered by 227 to 335 h.p. engines . . . have top speeds up to 34 mph. Full length, unobstructed door openings make these "Eucs" ideal for dumping free-flowing material into drive-over hoppers.

The TC-12 Crawler has 2 engines and independent track-drive . . . 425 net h.p. . . . full power shift . . . top speed of 7.8 mph. This "Euc" tractor has unequalled work-ability for heavy dozing, ripping and similar work in construction, mining and logging.

This "Twin" Scraper has 2 engines with Torqmatic Drive . . . all wheel drive permits self-loading . . . struck capacity is 24 cu. yds. There are six other Euclid Scrapers, overhung engine and six wheel types, with struck capacities ranging from 7 to 24 yds.—9 to 32 yds. heaped.

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EUCLID PRODUCTS

can Republic, among others. Both markets have been battlefields for sugar traders in the past, and the fight is becoming more intense now.

• **World Quotas** — The Free World Market supplies sugar to most of the world's net importers—20 countries, including Japan and Britain.

Shown in the chart are the basic quotas for exporters. These were cut 15% in November and February by actions of the International Sugar Council, which administers the system.

Last month the Council met again and reallocated quotas that could not be filled by some countries (Indonesia, Russia, parts of Europe). Cuba's quota, trimmed to 2,197,250 in February, went to 2,592,510—but, despite protests, it apparently will have to figure its sales to Russia as part of this quota.

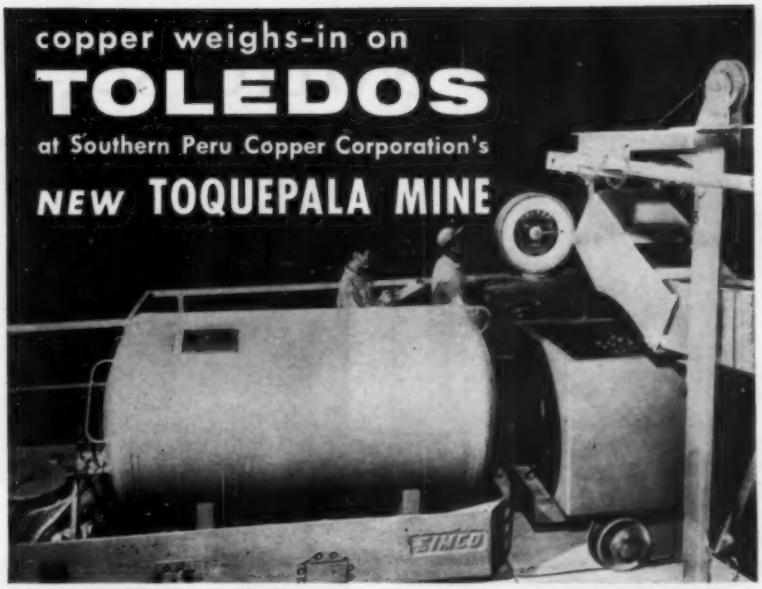
• **The U.S. Market** — The U.S. quota system also is the center of controversy today. The Sugar Act, under which the system is administered, expires this year. Now all countries that supply the U.S. are maneuvering for position, hoping to get a larger share of its huge, protected, subsidized market.

The problem has been complicated by the deteriorating relations between the U.S.A. and Cuba. Several U.S. congressmen have been demanding that Cuba's share of the market be cut.

Chances are that no radical change will be made to the present quota system. Sugar men believe that it would be unwise at this time. Instead, the President may get special powers to cut or raise quotas during the life of a revised Sugar Act.

Whether the U.S. quota system is changed at this time or not, the problem will be continued into the future. Every sugar producer wants to sell more to the U.S. market, where sugar now brings twice the price that it does elsewhere.

Cuba's favored position is based on tradition, its huge production capacity, its nearness to the U.S. mainland. Also, Cuba has always bought large quantities of machinery and other goods from the U.S. But these factors are subject to change, as Cuba moves in new directions and the world sugar industry continues to expand. ●



A TOLEDO MODEL 2141 BUILT-IN SCALE weighs pellets of ore concentrate in the grinding department.

SMELTER OPERATIONS, Toquepala Mine in Peru

TOLEDO AUTOMATIC LABORATORY SCALES assay ore samples at the smelter.

Jobs like heavy-duty weighing of ore concentrates and assaying ore samples demand high precision and dependability, at the new Toquepala Mine high in the Peruvian Andes. That's why Southern Peru Copper Corporation put Toledos on the job at Toquepala—one of the largest mining projects of the decade.

In Toquepala's operations, as in modern mining, manufacturing and other business operations world-wide, Toledos guard against losses, protect profits, preserve good-will with dependable weighing performance. In Toledo's complete line, you'll find the right answer to your weighing problems — including Toledos that *print* complete weight records automatically. Write today for new Condensed Catalog 2001. TOLEDO SCALE, Division of Toledo Scale Corporation, Toledo 12, Ohio.

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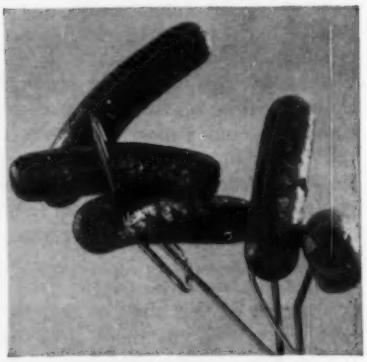
DARWINITES TO CEYLON

CEYLONESE TO BEIRUT

LEBANESE TO FRANKFURT



FRANKFURTERS TO LONDON

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A Policy of Risk and Profit

The new ICI chairman hopes to force the pace of rising living standards everywhere.

TO KEEP GROWING, industry—and particularly the chemical industry—must boldly take advantage of the rapid upward movement of standards of living, despite the "frightful risks" involved. This is the doctrine of 56-year-old economist Stanley Paul Chambers (picture), who recently took over as chairman of Britain's Imperial Chemical Industries Ltd., world's third largest chemical concern.

Chambers sees risks and opportunities everywhere: in highly-competitive Europe and North America, in the emerging economies of Africa, Latin America, and Asia, and in each of the Communist countries. He has far-reaching plans for ICI in all these areas.

Chambers singles out the opportunities for the chemical industry not only because of ICI's huge investment, but because of its position as one of the major beneficiaries of the rapidly changing demands of consumers.

• **Expansion** — The recently announced plans of ICI to manufacture polyethylene in Copenhagen, in partnership with two Danish firms, is a case in point. This will be the first polyethylene plant for Scandinavia. It will supply the Free Trade Area with a versatile material for everything from toys to plumbing.

A policy of plant expansion is already paying off handsomely for ICI as Chambers takes the reins. Sales last year were up 10% over 1958, to a record $1,425.2-million. Exports accounted for $245-million of this, compared to $206.6-million in 1958.

Profits rose even more impressively, from $124.6-million in 1958 to $204.7-million. This reflects a deliberate effort to reduce costs, as well as the impact of new plant capacity and more diversified sales.

• **Economist Chairman** — Chambers succeeds 70-year-old scientist Sir Alexander Fleck, who retires after 44 years with the company. Though Chambers denies there is any significance in an economist taking the place of a scientist, his background is well suited for the complex problems of common markets and global expansion that ICI now faces.

Chambers thinks and talks with the ease of a trained economist. An alert, friendly man of ideas, he has had an important influence on British industrial thinking as president of the National Institute of Economic and Social Research.

The new chairman had the unusual distinction of entering ICI at board level. He joined ICI as a director in 1947, after a government career with the Internal Revenue Department.

• **Red Gamble** — Chambers sees developing Communist markets as a great potential for his company. Trade between the West and the Soviet bloc will be increasingly important in the world economic scene, he says.

He recognizes that there are some risks to the West, but possible rewards outweigh them.

"If they don't buy it from us, they'll buy it from someone else," Chambers argues. "Or they'll discover it themselves."

ICI has sold a substantial amount of products behind the Iron Curtain. It also has concluded polyester-fiber licensing agreements with Czechoslovakia and Poland.

Living standards are rising in Communist countries as well as elsewhere, and Chambers believes that it is not only good business but good politics to help the process along.

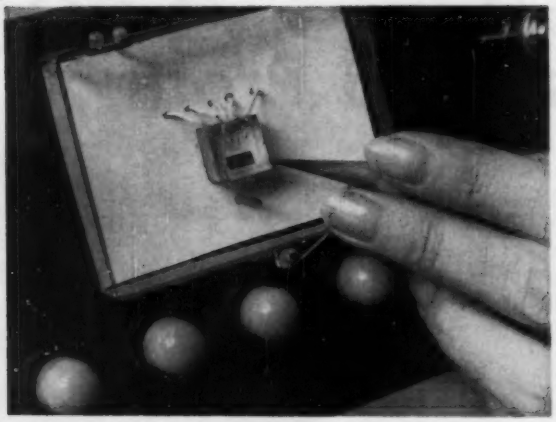
• **Emerging Nations**—Chambers expects the major increase in ICI sales to come first from industrialized countries with high living standards. But his eyes also are on the huge markets that will be developed in the emerging, newly-independent lands. He thinks that more companies like his own should be getting into these countries, in spite of the risks involved.

Stanley Paul Chambers

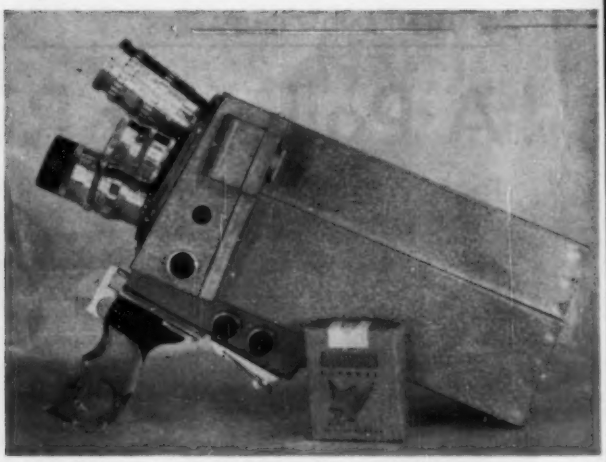
With its Commonwealth ties, British industry is peculiarly well-placed for these markets, Chambers points out. In spite of the steep rise of its European and U. S. sales, ICI still sends nearly 50% of its exports to Commonwealth countries—including underdeveloped areas—and it has manufacturing subsidiaries in several of them.

• **European Muddle** — Chambers does not expect an early rapprochement between Europe's Common-Market Six and Free-Trade Seven. He believes that right now, there are too many differences between the two groups to allow for a completely satisfactory accord. But when the Common Market becomes a going concern, its members may feel secure enough to make concessions to outsiders.

Meanwhile, Chambers is not seriously worried about ICI's sales within the Six—about 12% of total company exports. These exports largely are in sophisticated chemicals, where price is less important than quality. And even in some heavy chemicals—soda ash, caustic soda, chlorine—ICI is sufficiently well-placed in relation to raw materials to be able to compete in spite of tariff differentials. ●



U.S.A.—a micro-electronic, one-piece, pea-size switch.



FRANCE—a fully transistorized vidicon television camera.

World Electronics Creates Magic

Tiny tunnel diodes—and one-part molecular circuits—are fashioning a new electronic world that affects every business.

ELECTRONICS, billed as the "glamor industry" of the Sixties, is rapidly widening the scope of its activity. Some 60,000 scientists and technicians gathered at the recent Institute of Radio Engineers (IRE) exhibit and conference in New York, and heard about electronics applications ranging from space instruments to transistorized cash registers, from automatic controls for commercial aircraft to machines that turn spoken language into printed copy.

They came from all over the world—for electronics is becoming as cosmopolitan as it is versatile. Important new electronic equipment is coming from nearly every large industrial nation (pictures), and from not-so-large nations too. Together, they are spending thousands of millions of dollars on research and development.

The electronics specialists at the IRE exhibit spoke a language of their own—about gradients and modules and amplitrons. And especially you heard them talking about micro-miniaturization—the science of making electronics systems smaller, smaller, and still smaller.

Indeed, you could say of electronics that there is an inverse relationship between the size of its tools and the size of its sales: As the pieces get smaller, the industry grows larger. Right now, electronics engineers see tremendous new opportunities in a technique known as molecular electronics, which, if current research is any guide, can produce such wonders as a high quality radio the size of a pea.

• **Smaller and Smaller**—The emphasis is not entirely on smallness: It is on getting maximum efficiency and reliability in the smallest possible space.

The need for this is easy to understand. In medical electronics, for example, doctors want radio capsules that can be swallowed or injected and then transmit information from inside the human body.

Space engineering makes the demand for smallness even more imperative. It takes a ton of propellant to put a one-kilogram package of intricate instruments into space. And scientists want to put more instruments in every package.

Business machines also must be more compact. A decade ago, when computers were first introduced to industry, the mechanisms and controls took up entire rooms. Now useful all-purpose computers come the size of office desks, and they are constantly being made smaller and cheaper.

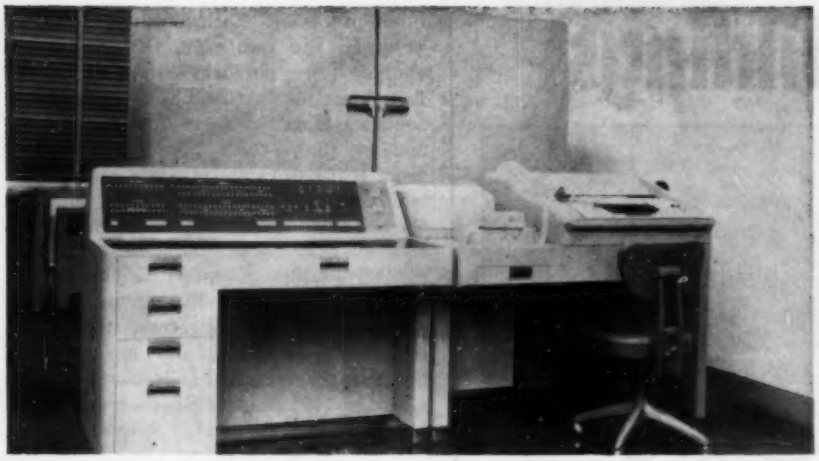
An electronic machine uses power, and this means the generation of heat. Here is another reason for economy in size: The smaller the instrument, the less space will be required for cooling its parts.

• **Transistor Progress** — The transistor was the first breakthrough in the search for smallness. Its introduction in 1949 added a new dimension to electronics, and made possible commercial computers, midget radios, and the thousand and one electronic mechanisms and gages that now serve every industry.

Transistors not only are much smaller than the vacuum tubes they generally replaced. They run at lower voltages, and they need no filament heaters. The result is a circuit that is smaller and lighter than a tube circuit, and with far broader applications.

Now, two recent developments appear likely to overshadow the transistor in years to come, though the transistor will still have a secure place in electronic circuitry. One is another semi-conductor device, the tunnel diode, which came out of Japan two years ago. The second development, still in the research stage, would completely do away with components such as transistors and diodes—and, through "micro-miniaturization" of functions, offer a complete control system in a single piece of semiconductor material.

• **The Tunnel Diode**—The beauty of the tunnel diode is that it can be only 1% the size of a transistor —no bigger than a pinhead—and



JAPAN—HIPAC 101 computer now available with parallel-binary presentation.

from Miniature Systems

yet operate faster and on much less power than the older device. The tunnel diode performs efficiently at extreme temperatures and can be used in equipment operating at very high frequencies.

The tunnel diode was initially developed by Dr. Leo Esaki, a 34-year-old researcher working for Japan's Sony Corp. Sony displayed some of the new devices at the New York IRE show, and it plans to market tunnel diodes in the U. S. this year. There will be competition from several big U. S. manufacturers who have been hastily developing tunnel diodes of their own.

In many respects, tunnel diodes are similar to transistors. Both are made of the semiconductor metals germanium and silicon, though some companies are currently experimenting with faster-acting gallium arsenide. These metals control and amplify electrical impulses.

The major difference between the two is that tunnel diodes contain 50 to 100 times as much foreign substance as transistors. These impurities create a "tunnel effect" through which electrons move at the speed of light.

Because of their high operating speeds, tunnel diodes are expected to have a great impact on the development of electronic data-processing equipment. Smaller and cheaper computers will be on their way, experts say, as more tunnel diodes become available at a price competitive with transistors.

Scientists working in cryogenics (very low temperatures) hope to use tunnel diodes in applications that were impractical with transistors. A tunnel diode can work efficiently at temperatures only a few degrees above absolute zero. The prospect is for faster-acting instrument components.

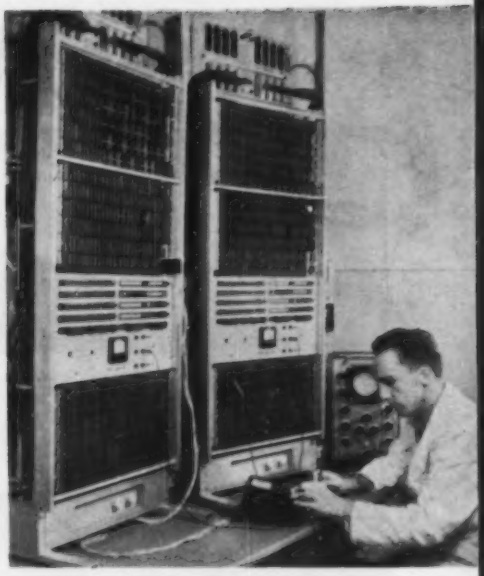
• **Micro - Electronics** — U. S. A.'s Westinghouse Electric Corp. recently unveiled an electronic control system—including a power amplifier, audio amplifier, multivibrators, and other functions—made from a single piece of semiconductor.

"This is the beginning of the end of the conventional electronics components business," said a Westinghouse official. The company hopes to build an experimental radio receiver this year that will be no larger than a pea.

The technique involves the new science of molecular electronics, or micro-electronics, being researched by several U. S. and British electronic firms. Experts say it is the final step in micro-miniaturization of systems.

Previously, individual components were connected together to perform a total job. Using the molecular-electronic technique, a scientist determines the functions that must be performed and then builds all of them into a single piece of semiconductor material.

He changes the structure of the tiny block of metal by diffusion, plating, etching, radiation, and

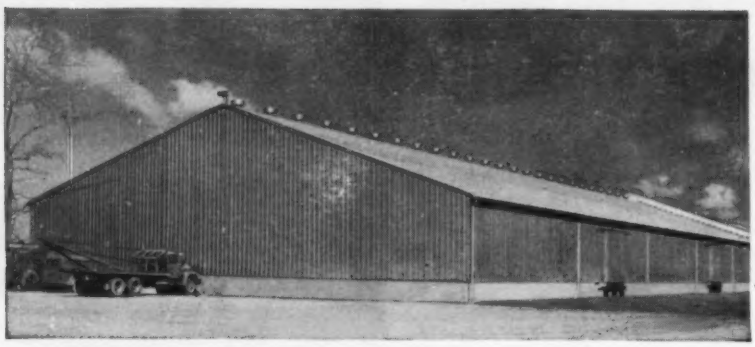


SWITZERLAND—frequency-shift remote control to service power lines.

BRITAIN—a velocity analyzer that can measure the speed of shells.

ISRAEL—newly-developed coneless woofer and tweeter loudspeaker.

Butler Buildings

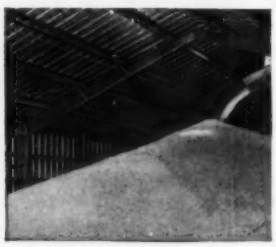


Your best building buy

The store and the warehouse above are good examples of how standardized Butler steel building components can be utilized to provide a wide variety of buildings quickly and economically.

Whether you want simple, functional lines or a more distinctive architectural treatment, you'll get more for your money using the Butler Building System.

A Butler is the lowest-cost quality building you can buy. Features such as fast erection, easy expansion, effective lighting, weathertightness, fire safety, and post-free interiors are inherent in Butler buildings and at a low cost, considering the quality of construction. They are designed to withstand wind loads of hurricane force.



Butler grain storage buildings are designed to withstand enormous bulk grain pressures. Tightly constructed, they keep grain clean, dry, bright. And, the total cost often is as little as one-third the cost per bushel of vertical structures.

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other processes. Each minute zone is given the treatment that will enable it to perform its special function. The entire block represents a system similar to—but much smaller than—those put together from transistors and diodes.

Molecular electronics is still in the laboratory, but it is moving fast. Westinghouse engineers predict that within three or four years the technique will produce far more efficient infrared detectors, telemetering equipment, and missile guidance systems. (*Electronics, Mar 4, p 159; Control Engineering, Mar, p 35*)

Low-Cost Process for Coating Metal

A LOW-COST METHOD of coating one metal with another is rapidly reaching commercial stature in the U.S.A. and Britain. Known as peen plating, the process builds up coatings by successively welding small powder particles onto parts.

No heat or electricity is required, as in electroplating or hot-dipping. The metal powders are hammered onto the part in a rotating barrel by steel grit or glass beads in a medium of water and chemicals.

• **Versatile** — Almost any metal except stainless steel, titanium, and magnesium can be peen-coated. Zinc is the most common coating material, though brass, cadmium, tin, and lead also can be used.

The process offers a more corrosion-resistant coating than electroplating. And it saves on labor and material. Close to 100% of the zinc is deposited. In contrast, hot dipping loses 20% to 60% of zinc through oxidation.

Parts to be coated first are degreased, etched, and precoated. Etching serves to roughen the surface of the part for better adhesion. The precoating usually is a thin immersion copper plate that protects the cleaned surface.

• **Limitations** — A disadvantage of peen plating is that costs go up as parts get larger. More impacting material must be used to prevent large parts from hitting each other. Also, parts with deep crevices can not be economically handled. (*Product Engineering, Mar 14, p 70*)

Better outlook for bad weather

Try and part an Englishman, his umbrella and his raincoat; it's impossible. But he knows what he's doing; he knows that it's always 'just about to' rain in England. So it's wise to have a raincoat close to hand . . . wiser still to have a lightweight model, say of flexible PVC—the versatile plastic that not only keeps the water off but, as 'rigid' piping, carries it too.

For PVC (unlike the weather) seeks only to please. It can be hard or soft, just as you wish it. The 'rigid' type particularly is finding a tremendous new use in piping . . . so much so that, in many countries, piping, PVC and Carina are as synonymous as 'Englishman' and 'umbrella'. Carina? The name of the range of vinyl chloride polymers made by Shell—a range suitable for almost every PVC manufacturing process. General purpose, mechanical, paste-forming and, most especially, unplasticized applications are met by one or other of the various types of Carina.

But Carina is only one of a family. Also from Shell come Carinex polystyrenes, Carlona high-density polyethylenes, Cariflex synthetic rubbers, Styrocell expanded polystyrenes and Epikote epoxy resins—as well as base chemicals such as toluene, benzene and xylene. For anything, and everything, to do with thermoplastic and thermosetting products and processes, look to Shell production and Shell skill to see you through.

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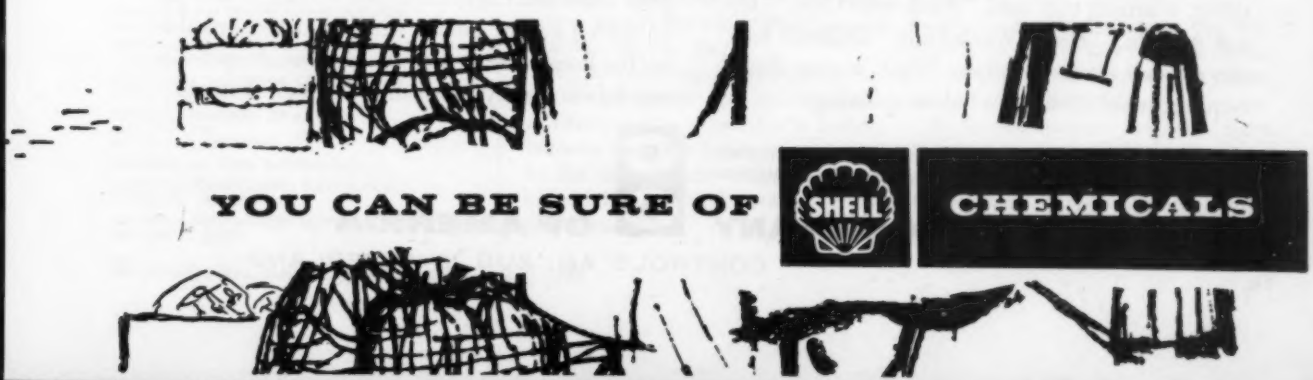

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NEWS FROM A COMPANY ON THE GROW...

Automating the Automatics

TUNES IN EVERY FABRIC'S FAVORITE WASHDAY PROGRAM

After nine years' steady growth, the simplicity of the automatic washer was being threatened by new fabrics that required special handling. Warning tags said, "Wash with Care," "Do not Agitate," "Hand Wash Only." Delicate fabrics needed gentle agitation. Wash 'n wear items required cold rinsing and slow spinning.

Controls Company of America (long creators of timers, solenoids, etc., for the appliance industry) introduced the complete answer to simplify control of the multi-fabric washer. It was the Cycle-Set Power Timer, which makes it possible for the housewife to pick the right wash cycle for any fabric simply by pushing a single button.

CREATING CONTROLS FOR TIME, TEMPERATURE, FLOW, MOTION

CONTROLS COMPANY OF AMERICA

CONTROLS AG, ZUG, SWITZERLAND

ON THE GROW BECAUSE...

ANTICIPATING THE NEED... If you're interested in the kind of ideas that make a company tick, and thrive, you'll want to know the other side of the story of our Cycle-Set Power Timer.

IT ILLUSTRATES our concept of our job. We aim to build "functions" —not just components. We aim to bring our customers an easy way to put simplification and sales appeal into their own products.

THE PACE OF PROGRESS is rapidly outmoding "do-it-yourself" control assembly. Our approach is based on the premise that control progress can best be served through specialization and concentration in terms of both engineering talent and financial investment.

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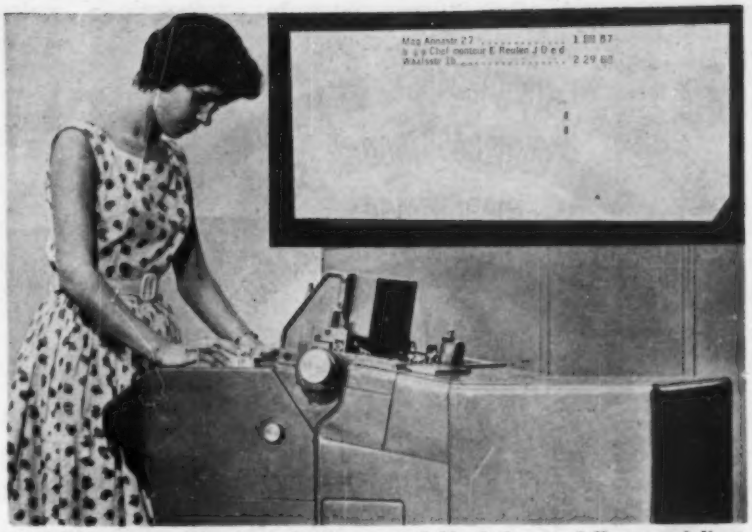

CAMERA exposes film for only the exact field of the carefully spaced lines.

List Printing Made Easy

THE PRINTING of telephone books, parts lists, catalogs, and directories normally takes an endless amount of typing, sorting, collating, typesetting—even when lists are a 90% duplication of past editions. The problem: How to make changes quickly, accurately, and cheaply.

The Netherlands Government Printing Office believes it has found a solution to its problem of printing telephone books. The Dutch are using a new automatic camera which continuously photographs listing information from individual cards. The resulting strips of film are used for offset printing.

• **Tons of Lead**—In the past, the Printing Office had to store and handle tons of lead slugs covering the active listings in its telephone books. Special storage facilities were required, and skilled personnel for making changes in this file of backwards-reading lead slugs.

The problem was further complicated by the Office's practice of printing two types of telephone books, one with three columns per page and others with four columns per page. The simplest change in a listing meant the costly handling of two files of lead slugs.

All this now has been replaced by a file of printed and coded cards. A change in a subscriber's listing is made by substituting a new card in the file. Dutch officials say the system has cut their overall printing costs 40%.

• **Three Steps**—The photographic process developed by the U. S. A.'s Eastman Kodak Co., consists of three steps: (1) preparing the cards; (2) photographing them; (3) processing the film.

In the first step, an operator types out the subscriber's name, address, profession, and telephone number on punched paper tape. The tape is fed into a typing reproducer, which carefully spaces the information onto a continuous strip of cards. The cards are automatically cut and coded with punched holes to indicate whether a card has 1, 2, or 3 lines of type.

The camera—called the "Recordak Listomatic"—reads these holes electronically, and exposes the exact amount of film required.

The film is processed and cut into lengths that make up the columns of the telephone directory. The columns are transferred photographically to metal plates and handled by conventional printing presses.

• **Special Advantages** — Dutch authorities say the new photographic system enables them to make quick changes up to the moment cards go to the camera. Also, three-column and four-column pages can be printed from the same film.

U. S. companies recently have begun to use the system for preparing internal telephone directories, and for chemical, real estate, and products lists. ●

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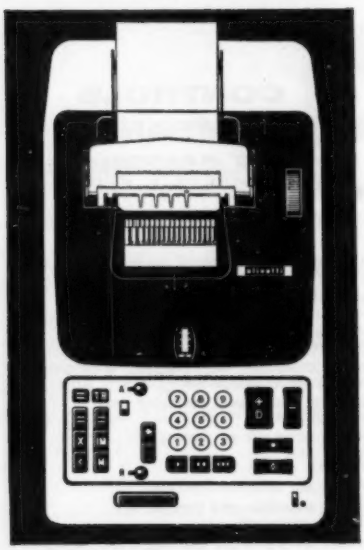
The calculator that adds, subtracts, multiplies, divides and gives credit balances at high speed.
The calculator with one register and a memory device that remembers the results of an operation and can use them again for subsequent operations.
The calculator that prints all the factors and results in the same order as they would be written by hand, earmarks each figure with a clear, identifying symbol of the operation completed or in progress, and prints the date.
Numerical capacity, safeguards and checking devices, ability to clear an operation totally or partially, ease of operation and exceptionally high quality in material and design - make the Olivetti Divisumma 24 the machine that performs with versatility at all levels of up-to-date production and administration, whether in industry or a business, a bank or a scientific institute.



Olivetti
Divisumma 24
calculates
remembers
prints

Sorting and totaling a bank's daily inflow of checks (right) is tedious and costly. The magnetic reading head above is the heart of an automated system helping . . .

Banks Attack Their Paper Problem

BANK CHECKS are only one phase of the avalanche of paper that today threatens to smother industry, but their use is increasing at a swift pace. And their handling represents a growing problem in many nations of the world.

Not only are a fantastic number of checks being written today—in the U. S. A., an estimated 13,000-million a year—but they are traveling longer distances, and being handled and rehandled as never before. A check drawn on a New York bank and cashed in Mexico City, for example, may go through 10 to 25 sorting, totaling, and re-sorting operations before it returns to the man who originally drew it.

Machines soon may take over a large part of this job. Experts say that in many cases they will do it cheaper than clerks, and of course faster and more accurately. Even when machines do not produce savings, they help banks keep up with rapid growth in check business.

The Bank of America, probably the biggest in the world, was the first to turn to check-handling automation. Its system is constantly being refined and extended. At least 100 other U. S. banks now have ordered similar systems, and eight computer manufacturers are competing for their business.

• **Requirements** — Three things are needed to automate check-handling operations: (1) a way of reading checks mechanically; (2) a machine for reading and sorting them; (3) a computer system that will process the information.

Magnetic Ink Character Recognition (MICR) is most commonly used to satisfy the first requirement. The bank, account, and amount are printed on each check in iron oxide ink. Specially-designed Arabic numerals that can be identified by machine are used.

The MICR bank and account number is preprinted on checks. Then, when a check is cashed, a bank employee encodes the amount on it with magnetic ink.

The heart of the sorting machine is its magnetic reading head, which picks up the signals from the checks. Electronic components convert this information into sorting activity and bookkeeping data for the computer.

Most MICR computer systems have been adapted by their manufacturers from electronic data-processing machines for general business use. A control unit is added to convert the sorter's signals to the kind used in a computer.

• **Speedy Information**—An automated system can give a bank information that was inaccessible before. Geographical and industrial classifications can be coded into account numbers, and the computer can then quickly dig out figures needed for surveys, loans, and service charges.

Some banks hope to integrate their check-handling automation with other paper-consuming operations. The same machines may be adapted for payrolls, personal loans, stock transfers, and record-keeping.

The main obstacle to automation is cost. Systems are priced from $200,000 to $2-million, and monthly rentals go from $4,000 to $40,000. This limits them, for the time, to just the larger banks.

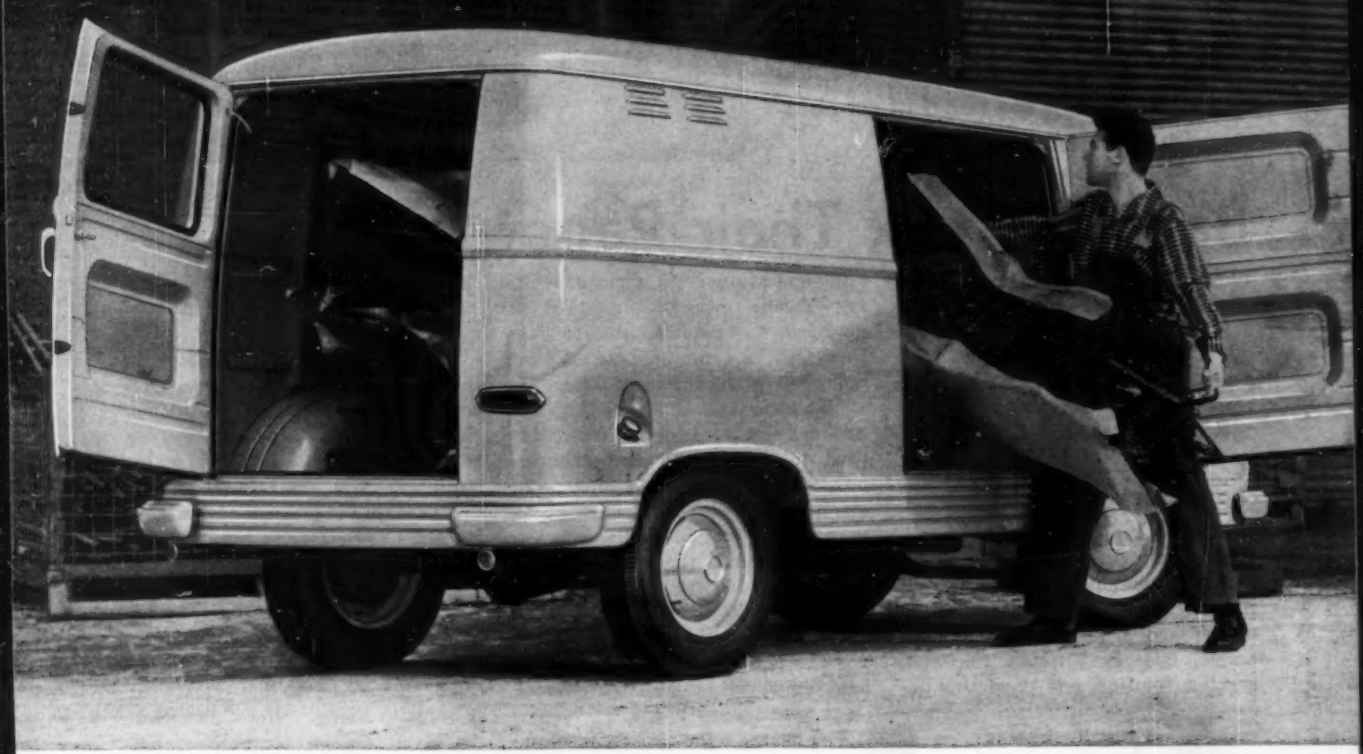
Full automation can only come when enough banks have installed systems. Banks now automate checks drawn on themselves, but checks in transit are sorted in a conventional manner.

• **Problems** — A common objection to automated check-handling is the lack of visible records. Many systems provide a visible copy of only the daily journal of all transactions. Customer statements are processed from tape.

But the main difficulty is one of customer relations. Banks now must persuade their big accounts to redesign their checks in keeping with automation requirements and to accept the abbreviated monthly statements—old balance, total deposits, total checks, new balance—that are produced by the new systems. (*Business Week, Feb* 6, *p*42)

TAUNUS

gives you complete



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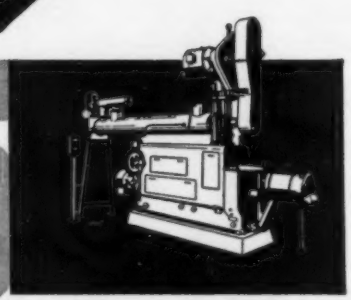

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New Techniques Make Improved Wood

SCIENTISTS are finding new ways to alter the properties of woods to make them more competitive with other materials in a wide range of commercial and industrial uses.

—In Russia, researchers are modifying both hard and soft woods by soaking them in monomers and then irradiating them.

—In the U. S. A., researchers are working out a new, economical method of drying lumber, called "solvent seasoning."

• **Radiation** — The Russian method, according to McGraw-Hill's *Nucleonics*, produces modified wood with many striking improvements over the original material—such as increased resistance to chemicals, fire, and fungus; higher strength and dimensional stability.

The Soviets also were able to reduce water absorption by treating the wood. For instance, their tests showed that maximum water absorption of the modified wood during a 30-day period was not greater than 25%, and the volume increased by moisture absorption was only half that of the original.

The Russian technique is reported to have several advantages over other treatment processes. It can be carried out at room temperature, without catalysts or initiators, and with low-viscosity monomers. By varying the choice of the monomer as well as the extent of impregnation of the fibrous base and the conditions of irradiation, materials with extremely different properties can be produced. The most interesting results, say the Russians, were observed with polymers that were soluble in their monomers.

One application of this polymer-wood has already proved successful, say the Soviets. The wood was used for molds employed in metal casting to form cavities of predetermined size and shape in molding earth. Such molds hardly changed shape or size—even after 18 days in molding earth. They absorbed only half as much moisture as molds that were not processed.

As a result of research accomplished so far, the Soviets are confident that their modified wood will find many applications in the building, transport, engineering, and electronics industries.

Polymerization of monomers by ionizing radiation can be accomplished not only in wood but in other fibrous materials — textiles, paper. An interesting application cited was the preservation of museum pieces, archeological treasures.

• **Drying** — The U. S. "solvent seasoning" process is expected to open the way to greater use of hardwoods in furniture and flooring, declares *Chemical Week*. The process saves time and offers a better product. Tan oak has been seasoned in 25 hours, compared to the months normally required for drying hardwoods. Green boards are stacked vertically in a vapor-tight extraction chamber, and a hot solvent is circulated at atmospheric pressure. Hot air and steam treatments follow. About 120 kilograms of chemicals, including tannin, are removed per 1,000 meters of lumber. ●

Dry removal of impacted grease and swarf from workshop and factory floors

Particularly valuable for use in engineering works, soap works, bakeries, transport depots, garages etc. due to its remarkable speed in action, the BITTERN Scarifying Machine quickly removes grease and built-up deposits from floors in dry powder form without the use of water or solvents. The powder can then be swept up with ease. Three wire brushes working on a counter-rotating principle ensure efficient cleaning over the whole area. There is no 'drift' and, even on rough surfaces, the BITTERN remains steady and easy to control. Both Electric and Petrol driven models are available.

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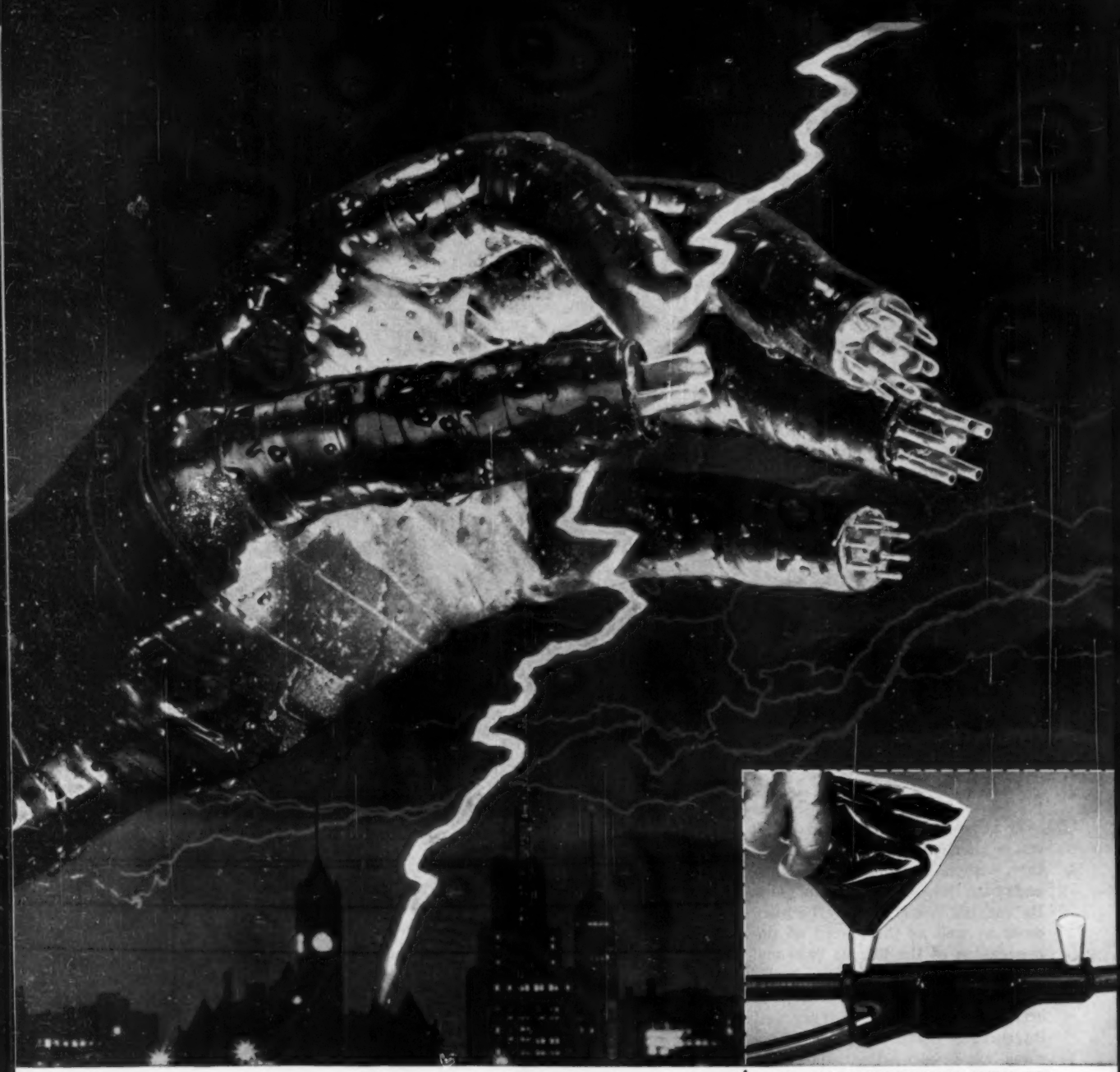

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Technology in Brief

Tougher Plastics from Japan and the U.S.A.

Two new plastics show unusual promise. From the laboratories of Japan's Kyoto University comes word of a resin said to be tougher and more heat-resistant than DuPont's acetal resin Delrin. Like Delrin, it may go into gears, wheels, and machine parts. The synthetic is made from supercooled and irradiated formaldehyde. In the U.S., several companies are working on a new olefin called polybutene-1, which is reported to have higher burst strength than polyethylene as well as toughness and high impact strength. Petro-Tex Chemical Corp. will have a large-scale pilot plant for evaluating the material by the end of the year. (Product Engineering, Mar 21, p7; Mar 28, p6)

Novel MHD Generator Uses Ordinary Fuel

U.S.A.'s Westinghouse Electric Co. has developed a magnetohydrodynamic (MHD) generator that uses furnace oil (burned with oxygen) rather than an electric arc to produce an electrically-conductive hot gas. Potassium soap in the fuel is ionized to provide free electrons, which are deflected to graphite electrodes as the gas passes through a magnetic field. A 10-kw generator has been tested for short runs. (Chemical Week, Mar 26, p84)

Machine Creates Ultrahigh Pressures

A machine developed by F. H. McGraw & Co., New York, brings ultrahigh-pressure processing within the reach of medium-size factories and laboratories. With one of the machines, samples can be subjected to pressures of over 100,000 kg/sq cm—enough to change carbon into diamonds. Units also can be used to improve the properties of metals, fabricate alloys, and compress powders into new materials. They sell for $10,000 to $100,000. (Chemical Week, Mar 5, p36)

Glass—More Versatile Than Ever

Research is carving out a broad future for glass: structural parts with the strength of steel, windows that change from transparent to opaque at the touch of a switch; microporous glass that admits and conditions air. Glass researchers say these will be available in another five to 15 years, plus some versatile glass fibers and foams—and glass panels that will use thermoelectric converters to cool homes. (American Machinist/Metalworking Manufacturing, Mar 21, p103)

In One Sentence . . .

Irradiation is being used to make much stronger polyethylene film for food packaging by W. R. Grace & Co. . . At a tankless petroleum storage terminal in the U.S., tank-truck drivers draw their supply directly from pipelines. . . Smokestacks for food and processing plants now are being beautified and protected inside and out by richly colored corrosion-resistant glass. . . Two new chemicals, azauridine and iododeoxyuridine, show promise in the treatment of leukemia and other types of cancer, but they still are very expensive—about $2,300 to $18,000 per kilogram. . . Engineers of the U.S. government's Bureau of Mines have developed a method for casting molybdenum into useful shapes, which may lead to more commercial use of this novel metal.

How the Dutch Sell Capital Goods

Missionary representatives of the Industrial Foundation bring in big business from overseas for Dutch companies.

HOW TO SELL capital goods and large engineering projects against stiffening international competition is a problem for all the industrial nations. The Dutch are no exception. And in their typically thorough fashion, they have developed an organization which is now producing results—in the amount of $125-million or more worth of overseas business.

The organization is called the Netherlands Industrial Foundation. Its task is sales promotion, "missionary" work that brings Dutch companies and overseas projects together. Once negotiations are under way, the Foundation's job is done.

• **New Emphasis**—The Foundation was originally established to coordinate Dutch industrial projects in Indonesia. It was a success. And after Indonesia became independent, the Foundation turned its attention to other areas, concentrating on the underdeveloped countries. The Foundation also maintains an office in New York, because of the international organizations with headquarters in the U. S. A.

There are now three traveling representatives who spend their time in the Middle East, the Far East, North and West Africa, and all over Latin America. They are Dr. A. F. Stokhuizen, C. den Hollander, Dr. Max Weisglas.

These men work on their own initiative, without close guidance from headquarters. They have, in the past few years, established excellent relations with government officials and business leaders overseas. In important areas, they depend on resident observers to keep them posted on developments. The representatives also keep in touch with the commercial counsellors in the Netherlands foreign service.

• **Turn-Key Projects**—The contact men concentrate almost exclusively on "turn-key" projects (complete installations of plant and equipment), large orders for capital goods, and missionary work for overseas capital investments and joint ventures.

When a likely project is spotted, the representative tries to contact the principals. In reports to The Hague, he informs headquarters of his progress. When the time is ripe, appropriate Dutch companies are brought into the picture—and the Foundation steps out.

Recent projects "brought home" by the Foundation include a joint-venture rayon plant in Mexico with AKU as one partner; a shipyard in Haifa, built by De Schelde of Flushing; technical assistance contracts for Tunisian shipping companies; and the construction and equipping of factories, schools, hospitals, hotels, and slaughter houses in a number of countries—all projects that a variety of Dutch companies will participate in.

In the past two years, the Foundation has participated in 368 projects. Eighty-nine involved only advice or mediation on projects initiated by Dutch companies. In the 279 proposals initiated by the Foundation, 12 had concrete results, 157 had negative results, 110 are still under study. Considering the nature of the projects, a success ratio of 1-to-23 is thought to be satisfactory.

• **Goodwill Follow-Up** — Headquarters is staffed by two permanent secretaries, Dr. D. Jongkees and Dr. H. R. van Dijk, who also do some traveling. They report to Dr. J. Meynen, managing director of AKU, who is chairman of the Foundation's executive committee. Prince Bernhard of the Royal Family serves on the Board of Directors, along with some of Holland's top industrialists. One sponsor recently described the Foundation's work as a "follow-up to the goodwill created by Prince Bernhard on his overseas journeys." ●

22
Vikings to pump
Rubber
Cement

When an eastern chemical plant needed 22 heavy-duty pumps to handle rubber cement, they selected the new Viking K-288 units. Ability to handle viscous liquids under various conditions was of prime importance. Other major considerations were: quiet operation, cleanliness and simplicity in servicing. Compact, pressed steel bases also cut space and weight.

These K-288 pump units are suitable for many different pumping problems. Their five gear reducers are interchangeable and permit speeds ranging from 280 to 520 R.P.M. using 1750 R.P.M. motors, and 190 to 420 R.P.M. using 1200 R.P.M. motors. Capacities range from 17 to 164 G.P.M. Maximum pressure 200 P.S.I.

Check these pumps for your next pumping job. Ask for catalog sec. C pages 27-28.

VIKING PUMP COMPANY
Cedar Falls, Iowa, U.S.A.
In Canada, it's "ROTO-KING" Pumps
World Wide Sales and Service

In Marketing

CADENA CENTROAMERICANA—The Central American Television Network—claims to be the first international commercial television chain. The new company is owned jointly by five stations, one each in Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua, and by the American Broadcasting Company, New York.

The network is now establishing its programming (mostly ABC films with Spanish-language "dubbing") and sales departments.

The other major U. S. television companies, National Broadcasting Co. and Columbia Broadcasting System, are also active in Latin America. CBS has established a company in Argentina to produce programs on videotape. NBC is helping to develop two new TV stations in Guadalajara and Monterrey, Mexico.

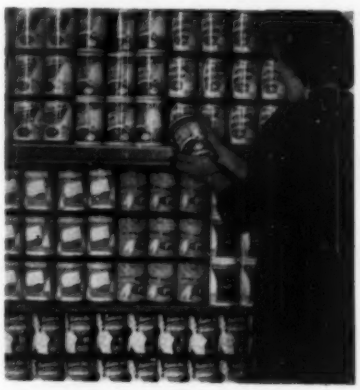
A MOVEMENT toward self-regulation of advertising has been started in the U.S.A. by the Cleveland (Ohio) Advertising Club. The Club has set up a review board to pass on the "truth and taste" of advertising done by local firms in local media. The standards combine the best features of the Better Business Bureau code (IMD, April) and the results of a survey by the American Association of Advertising Agencies. A report on the Cleveland plan has been sent to all members of the Advertising Federation of America, reports *Printers' Ink.*

COIN-OPERATED drycleaning machines are now joining the washing machine in U. S. do-it-yourself "laundromats." For 75¢, a customer can clean three or four pairs of trousers and a coat in about 40 minutes. Cleaning agent is perchlorethylene, reports *Chemical Week.*

First machine in the field, distributed by International Coin Dry Cleaner (Toledo, Ohio), costs $6,000, weighs 585 kilograms. Lighter machines are reported to be under development by several companies, at prices under $2,000.

Since the machines will not prespot or finish, their greatest appeal is to lower income families, and for cleaning such things as sweaters, blankets, etc.

TYPICAL BRITISH SALESMAN is married, has one or two children, lives in his own house in town, drives a company car, and earns between £1,000 and £1,500 a year from a combination of salary and commission. These are results of a survey by *The British Salesman,* a trade magazine.



CANNED APPAREL has successfully passed supermarket tests. *Modern Packaging* magazine reports nine U. S. garment manufacturers are now marketing everything from brassieres to petticoats in packages that stack and look like cans of peas. The cans, actually cardboard containers, solve a persistent display problem for food stores, and should help to expand the sale of soft goods in this market.

PRIVATE BRAND BUSINESS can be good business. But Northern Electric Co. last month began putting its own name on some of its highly successful products. Northern makes about half the electric blankets sold in the United States; but until now, this Chicago company has been primarily an anonymous supplier of blankets to "anyone who could order and pay for 2,500 blankets" to market with their own label.

The company also markets seven or eight of its own brands, often in the same outlets with Northern-made private labels. Challenger is sold by department stores, Crestwood by appliance dealers, Century by utility companies, Empress by house-to-house salesmen, etc. Now these will carry a "By Northern" slogan.

"We are happy with the private brand operation," President Dudley Woodman, told *Electrical Merchandising Week,* "but we believe real long-term growth has got to come in our own name, and largely through distributed lines."

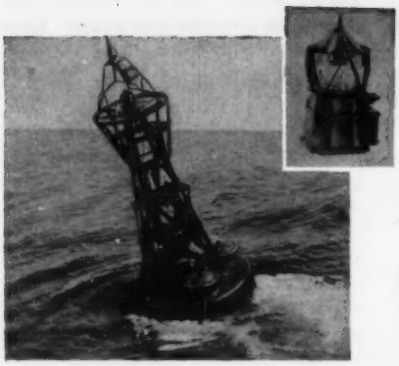
LOWER FREIGHT RATES went into effect last month for North Atlantic air-freight shippers. Commodity categories include radio and television sets and electrical appliances, automobiles and agricultural machinery, optical goods, shoes, and musical instruments. Reductions range from 35% to 70%.

North Atlantic air-freight shipments in the first two months of 1960 were up 37% over the same period last year.

THE GERMAN HOUSEWIFE is thrifty and pfennig-pinching, according to tradition. But is she? A new survey by the Federal Ministry of Economics indicates that one out of six does not know how much a loaf of bread costs. And a majority say they prefer to shop "expensively" to "cheaply."

When it comes to economic theory, Economics Minister Erhard's "free market" doctrine has not won many converts. Asked whether government fixing of production levels indicates a "free" or "planned" economy, 40% of 3,500 men and women replied they did not know. Only one in three thought the consumer could do anything to keep prices down.

BRIEFS: Luxury goods did well during the recent U. S. stock market slump, according to *The Wall Street Journal.* A boat dealer reported cruiser sales up 300% over last year. Prices paid for antiques at auction galleries have been running 10% to 15% above last year. Cadillac sales were up as well. . . . **Tinted automobile tires** are the latest automobile accessory; one beverage company is testing red tires to match its trade-mark color. . . . The U. S. A.'s Admiral Corp. has put into production **a seven-transistor pocket radio** to sell for $29.95. The company calls it "another major blow to the Japanese electronics invasion." But a Japanese company is reported nearly ready to market a **$295 color TV set,** a full $200 below U. S. models. . . . **International Congress of Outdoor Advertising** is scheduled for Toronto, Canada, July 11-16.



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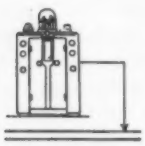
A W&T Buoy equipped with an electrically powered beacon, automatic lamp changer, flasher unit, and radio control equipment is shown above in service at a harbor entrance. Wallace & Tiernan equipment was chosen because of its dependability and economical operation. These qualities are typical of all W&T's navigational aids which include such items as lamp changers, flasher mechanisms, signal timers, fog horns, aircraft flasher units, and other related apparatus.



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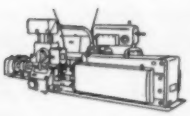

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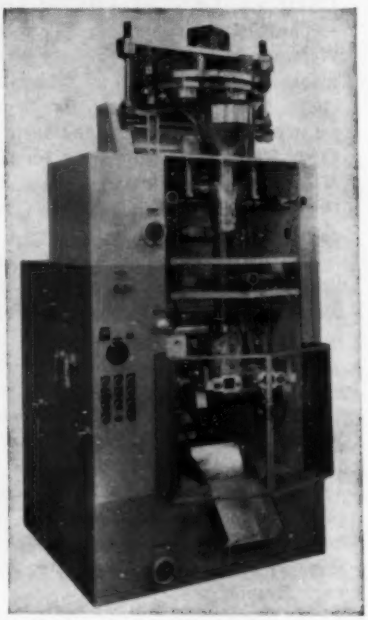

New Packaging Machine Makes, Fills, Seals Bags

This automatic machine not only fills but forms and seals bags, reportedly without distorting flexible film material. It can handle any kind of product—free-flowing, solid, or liquid. The machine measures the product, then forms and fills packages, closes them, and delivers up to 75 a minute ready for shipping. Bags can be made of any heat-sealing flexible film or paper, in sizes from about 8 to 38 cm long, 5 to 21 cm wide. Changing to another bag width takes about 15 minutes; bag length is changed in less than five minutes. The machine is called Transwrap S-750. *Package Machinery Co., East Longmeadow, Mass., U.S.A.*

Sorts Wet Food Products

Unlike other electronic sorters, which handle dry foods, this machine is equipped to sort wet food products like diced carrots, beans, cherries, and olives. It sorts them at the rate of about 150 per second. Faulty products are rejected by a blast of air from suction fingers on a wheel that rotates past the photocell. The electronic circuits are designed to withstand moisture. *Electric Sorting Machine Co., Houston, Texas, U.S.A.*

Miniature Oscilloscope

Checking welding control equipment is the chief job of a new miniature oscilloscope, the Sciaky S.O.1. But the fact that it is simple to operate, weighs only 2 kg, and is as small as an ordinary box camera makes it equally suitable for rapid fault-finding on production lines. *Sciaky Electric Welding Machines Lt. (Electronics Div.), Falmouth Rd., Slough, Bucks., England.*

Chemicals Stop Water Seepage

A new chemical compound, SS-13, is claimed to cut the seepage of water through soil by 80%. It is merely poured into the water of a canal or pond, where it is said not to affect plant growth. It is also suitable for use in sewage ponds, according to the company. The chemical consists of resinous polymers and heavy atoms in a carrier of diesel fuel, and is readily mixed with water. *SS-13 Sales Co., 716 South 7th St., Phoenix, Ariz., U.S.A.*

Dual-Purpose Adhesive Tape

A new adhesive, Metlbond 406, is typical of the versatile glues now available to manufacturers (IMD, Apr, Technology). An unsupported, calendered tape, it is adaptable to both sandwich structures and metal-to-metal bonds. At room temperature the adhesive is dry and easy to handle. At high temperatures it momentarily softens and flows, wetting the bonding surface. With more heat and moderate pressure it becomes a tough film that maintains good bond strength up to 94 C. *Narmco Resins & Coatings Co., Victoria & Placentia, Costa Mesa, Calif., U.S.A.*

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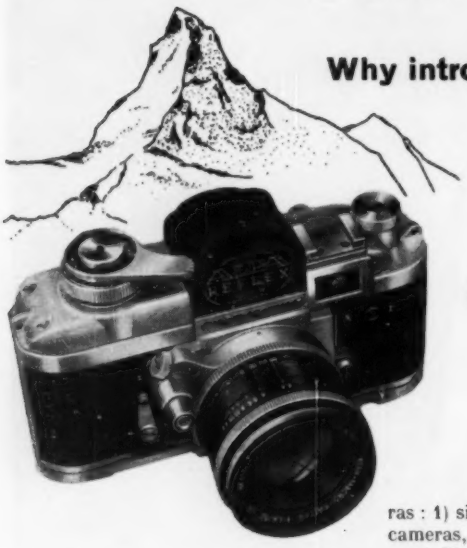

Why introduce the ALPA* *"the Swiss watchmakers' camera"* to the subscribers of Management Digest?

by Georges Caspari

Why ?... For reasons as diverse as the ALPA is versatile !

As a business executive, you have the problems of your company on your shoulders. It may be that the ALPA can solve some of them for you and help to ease the load.

The ALPA can be put to the service of any type of business. Whether your problems are industrial, technical, administrative or commercial, you will be surprised to find how many of them can be handled by an ALPA.

The use of photography in the business world has developed alongside the development of rationalization in business methods. The simplification of record keeping, the clarification of handling instructions for tools and machinery, the perfect reproduction of important documents of all kinds, are but a few of the vital services it has to offer.

In the research laboratory also photography gives invaluable service by providing perfect documentary records.

Needless to say, something more than an ordinary camera is required : the instrument must be fundamentally designed to fulfil all these operations.

The mere fact that you subscribe to Management Digest gives a clue to your character : supposing that photography is one of your relaxations, the chances are that you aim for more accomplished photos ; you appreciate the finer points of photography and of a camera that gives full rein to your talents because it imposes no technical limitations.

It was precisely for such connoisseurs that the ALPA all-in-one camera was created.

Designed and built in Switzerland, the ALPA proves yet again that the Swiss are masters in the art of precision, for in this one fantastic camera are combined the fundamental principles of the *three* main classes of modern cameras : 1) single-lens reflex, 2) rangefinder cameras, 3) twin-lens reflex.

a) Since the ALPA is a 24 × 36 single-lens reflex camera, it gives you the advantage of viewing *through the actual taking lens*. This eliminates the danger of parallax (how many heads have you scalped in your close-ups ?). On the ALPA's *groundglass* you have a comprehensive check of your image : sharpness, framing, color harmony, depth of field.

b) To exploit the advantages of a rangefinder camera, the ALPA incorporates *in its actual reflex system* a split-image prism rangefinder. Thus, with the new ALPA model 6, while you still view by reflex, you can be certain of a critically sharp picture. By aligning the two halves of the split image, your focusing is instantly and automatically correct, with any lens at any distance.

c) Using a brilliant watchmaking technique, ALPA's designers have devised a *lightning mirror with instantaneous recoil*, thereby solving the difficulty previously overcome only by twin-lens reflex. This amazing lightning mirror eliminates the *image-blackout* on single-lens cameras that normally follows the pressing of the release (on the majority of cameras, re-viewing even necessitates *resetting* !). The ALPA's lightning mirror restores the image instantaneously on the groundglass for all speeds from 1/50 to 1/1000 (so rapidly that your eye is unconscious of any blackout). In other words, it provides continuous ground-glass observation of your subject — changes of expression, involuntary movements, etc.

These are the qualities the ALPA offers the businessman, both in his professional world and outside it.

* The ALPA, "the Swiss watchmakers' camera", is manufactured in Switzerland by PIGNONS S.A. at Ballaigues. In the U.S., apply to Karl Heitz Inc., 480 Lexington Avenue, New York 17 (N.Y.).

Transistorized Computer Is Smaller, Less Costly

The latest entry in the field of general purpose computers, the transistorized Monrobot Mark XI, is hardly bigger than an office desk and costs half the price (less than $25,000) of its larger colleagues. It has a memory capacity of 2000 instructions, runs from an ordinary a.c. outlet, and needs no air conditioning.

The manufacturer says the Mark XI can handle every kind of input or output code, and is easily changed over from one code to another. It can simultaneously process information from three different inputs, all in different computer "languages".

The computer is aimed chiefly at smaller companies who have not yet been able to afford a computer to do their payrolls, invoicing, inventory control, and the like. *Monroe Calculating Machine Co., Inc., 555 Mitchell St., Orange, N. J., U.S.A.*

Spiral-Weld Pipe Made on the Job

A German machine called the Driam Pipe Mill produces continuous lengths of pipe—on the site of a job—in diameters of from 1.25 cm to 3 meters. The manufacturer says it will make 260 meters during an 8-hour shift at 75% of the cost of conventionally-made pipe. The pipe is welded inside and out in a spiralling pattern. *Driam S.A., Liechtenstein-Schweiz, West Germany.*

In brief . . .

Diamond drill made by *Mindrill Ltd., Melbourne, Vic., Australia,* can drill to depth of 3000 meters, vertically or at an angle. . . . **Filmstrip projector and phonograph** are packed together in compact (4½ kg) Mite-E-Lite unit. *Dukane Corp., St. Charles, Ill., U.S.A.* . . . **Hand stamp** making 30,000 impressions without re-inking comes from *Schwaab Stamp & Seal Co., Milwaukee, Wis., U.S.A.* . . . Latest **tractor** from *J. I. Case Co., Racine, Wis., U.S.A.* mounts backhoe and other interchangeable equipment, has torque-converter drive. . . . **Spray gun** that mixes two fast-reacting plastic potions comes from *Binks Mfg. Co., 3114-44 Carroll Ave., Chicago 18, Ill., U.S.A.*

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Reform for the Stock Exchange

Reformers are looking for guidance to the efficient and well-regulated U. S. securities market.

Unique features are a true auction market, specific rules against unfair practices, and "full disclosure."

IN PARIS, a Common Market commission is studying the major European stock exchanges, looking toward possible regional markets for securities of the Six nations. Perhaps as important, the commission is studying stock trading with an eye to changes in practices.

In Britain, there is serious debate over whether to establish a regulatory agency based on the U. S. Securities & Exchange Commission. Belgium and Japan already have such agencies.

In Ghana, a commission recently made recommendations for a stock exchange in Accra—to provide a needed marketplace for government bonds, and possibly future common-share trading. Recommendations follow European practices much closer than American, but the significance is perhaps more meaningful for Europe than Ghana: Practices that are suitable for a new exchange in Accra may well be outmoded for Europe.

These are logical developments of the resurgence of world capital markets, and the diffusion of public share ownership. But according to one student of finance, they represent something deeper. "There is today a world-wide wave of interest in better financial and company laws," this well-traveled observer told INTERNATIONAL MANAGEMENT. He believes that a major reform movement is underway.

I. Basic Principles

Stock exchanges vary widely, of course. The trading in Paris is apt to be mercurial; in Zurich the atmosphere is calm and sedate. But there are certain underlying principles of trading that can be generalized. On three important counts, the operation of the American markets is unique. Reform leaders are studying their application:

—U. S. stock exchanges are true auction markets. Trading is dominated by brokers rather than dealers. And the activities of middlemen—or "specialists," as they are called—are restricted to maintaining "fair and orderly" markets in particular stocks.

New issues are not distributed on the stock exchange; this function is carried on by investment bankers. In the U. S. A., investment banks are completely separate from commercial banks. In contrast, the "European scheme" of trading proposed for Ghana's new exchange calls for commercial bankers to act as brokers and dealers.

In addition, there is in the United States an "over-the-counter" market—an organized dealer network—outside the exchanges. This provides a marketplace for stocks that would hamper an auction market. A "floating supply" of stock is necessary for an auction market.

—Prohibitions are specific. Stockholders everywhere are protected by general laws against fraud. But U. S. experience has demonstrated that regulations governing stock trading should be spelled out in detail.

—Full disclosure is required. This is believed by many to be the key to a vigorous capital market. All companies listed on the major U. S. stock exchanges must issue detailed financial reports, and report important changes (such as a new president) immediately.

The idea of full disclosure was originally borrowed from the British. But the British have since lagged far behind. A British company is not required, for instance, to report such basic information as *Cost of Goods Sold*. Without this figure, it is difficult to compare companies, or to judge management.

Full disclosure in the U. S. A. has made possible the growth of a powerful corps of professional security analysts (1671 investment advisors are registered with the SEC). These men provide the catalyst that is missing in many markets.

They also influence U. S. investments abroad. Last year, a group of analysts went to Europe looking for investment opportunities. They returned with a wary attitude toward foreign corporate shares.

• **Pressure for Change**—Advocates of full disclosure are increasing in every industrial country. A small banker in Frankfurt, for instance, complains bitterly about the German stock market (most seats on the German exchanges are owned by banks). He says the big banks have directors in all the important corporations, and thus have access to information that is denied other investors. This is unfair to small banks, he says (not to mention small stockholders), and the solution is a full disclosure law.

II. A Bit of History

Two landmarks in U. S. history go a long way in explaining the regulation of the U. S. securities market. The first was the stock market collapse in 1929, which led to the Securities Exchange Act.

A critical cause of the collapse, according to the Congressional investigators, was a lack of adequate information on company affairs. This led to "full disclosure."

Another abuse was the excessive use of credit, resulting in wild speculation on small "margin" (the percentage of cash investors must put up). The margin requirement is now adjusted to market conditions.

The third cause was manipulation. Company officers and principals are now forbidden to make "short" sales (speculators often sell stock they do not own, in the hope of buying for delivery at a lower price). And insiders must wait six months between buying and selling transactions. Furthermore, insider activity is made public by the SEC in a monthly report.

• **Second Landmark**—In 1938, it was discovered that the president of the New York Stock Exchange's board of governors, a prominent

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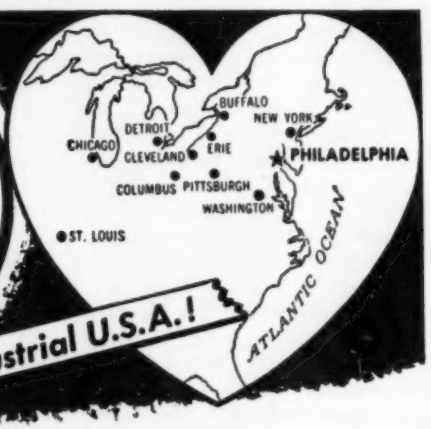

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broker named Richard Whitney, had been misappropriating customers' funds.

As it turned out, this scandal accomplished more than the law in converting stock exchanges from "private clubs" into "public institutions." It led to a complete reorganization of the major exchanges, and effective self-regulation. At the least, brokers are required to maintain a certain capital-to-debt ratio, to keep accounting books, and to confirm each trading action to the customer.

III. The Watchdog

Each year, the Securities & Exchange Commission turns up at least one spectacular fraud. But for every Ivar Kreuger, there are dozens of petty swindlers. The SEC has a file on 70,000 violators of its regulations; and last year, investigators had occasion to check up on 9,500 names, of whom 6,000 turned out to be "old friends." The SEC works closely with better business bureaus (IMD, April) and chambers of commerce. Each quarter it sends a "wanted" bulletin to law enforcement agencies.

The biggest problem in recent years has been the "boiler room." An accurate, if somewhat formal, definition is provided by the SEC: A boiler room is "a firm engaged in the sale of securities primarily over the long distance telephone, to persons with whom the firm has had no previous contact and by high pressure methods ordinarily accompanied by gross misrepresentation and other devices."

The boiler room is one of the few violations that the SEC considers serious enough for criminal prosecution. Last year, it took 35 cases to court.

Attempts to manipulate the market are no longer frequent, but they require constant vigilance. The most common trick is planting misleading information in the newspapers. Occasionally, the SEC discovers someone executing simultaneous buy and sell orders to stimulate activity in a stock. Such "wash sales" are strictly forbidden.

IV. The Big Board

Today, about 85% of trading volume is done on the New York Stock Exchange, with 8% on the American Stock Exchange (also in New

York) and the remaining 7% on 12 small "regional" exchanges.

The New York Stock Exchange has rigid requirements for listing. It will list only common shares that carry proxy voting rights, for instance. Among other attributes, a company must have earned $1-million for several years, under "competitive conditions."

In recent years, the NYSE has tried to lure foreign companies onto the Big Board, but without great success. Except for a few of the international giants (Royal Dutch Petroleum, Montecatini, etc.), companies have balked at "full disclosure." But the possibility of tapping the U. S. capital markets may yet prove to be a powerful lure.

The American Stock Exchange, with much less rigid requirements for listing, is considered a stepping stone to the New York exchange. By a gentleman's agreement, trading on the American exchange ceases when a company transfers to the Big Board. In contrast, the smaller exchanges do most of their business in Big Board stocks.

V. Over-the-Counter

"Over-the-counter" stocks, for the most part, are small issues without enough activity to warrant listing on an exchange.

A prime goal of the SEC in recent years has been closer regulation of the over-the-counter market. Any company that makes a public stock issue, whether listed on an exchange or not, must meet SEC requirements. But Congress has shown little interest in extending the full-disclosure law to small companies. The "Fulbright bill," currently before Congress, would extend full disclosure only to companies with 1,000 stockholders and $3-million in assets. Most companies in this class are already under SEC regulation.

• **Self-Regulation**—The answer to over-the-counter regulation, like regulation of the stock exchanges, has turned out to be self-regulation. The National Association of Security Dealers has 4,000 member firms, with registration of 78,000 employees who deal with the public.

Suspension or expulsion from the association carries a real penalty: NASD member firms can grant price concessions only to other NASD members. ●

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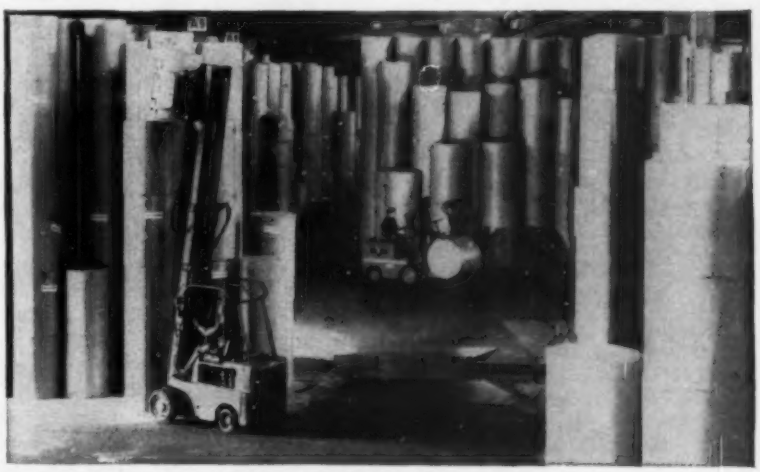

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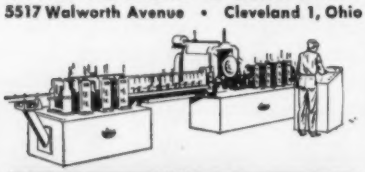

ENGINEERING YODER MANUFACTURING PIPE AND TUBE MILLS (ferrous or non-ferrous)

● MANAGEMENT METHODS

Rendezvous in Australia

A FEW WEEKS AGO, 250 management specialists from 28 nations trekked to Australia and got a first-hand look at that country's bustling industrial progress (page 2). But the main reason for the visit was to join with their Australian colleagues to renew and refresh the enthusiasm of the organized forces of international "scientific management," the Comite International de l'Organisation Scientifique.

A. M. Lederer

And to see that the enthusiasm is sustained they elected Albrecht M. Lederer (above, and cover), an American, as their leader.

CIOS, with headquarters in Geneva, has acted as a sort of holding company for the management associations of most of the world since the mid-1920's. But its U. S. membership has never been strong: The Council for International Progress in Management (CIPM) has been the sole official American representative body since 1933; most U. S. businessmen are unaware of both CIPM and its parent body. So one of Lederer's most pressing tasks as the new CIOS president will be to awaken the interest of his fellow countrymen.

• **U. S. in '63**—How far he succeeds will be measured in a few years' time. For at the congress in Sydney members voted to make the United States their host for one week in 1963.

For its 13th congress in New York, CIOS can probably count on even greater enthusiasm than was shown in Australia—but not only because of geographical advantages. To many businessmen around the world, the United States means management. And CIOS has been one of the organizations responsible for spreading U. S. management methods to the rest of the world.

Its most effective job has been the organizing of its triennial congresses, enormously ambitious affairs like the one just concluded in Sydney. Members value the direct personal contact of these worldwide meetings, plus the more frequent European and Western Hemisphere regional gatherings.

• **Other Tasks** — But CIOS performs many other less spectacular tasks. Year in, year out, it maintains contact through its Geneva secretariat with each of its member bodies—with the Dansk Nationalkomite for Rational Organisation, the Teknik Arastirma ve Gelistirme Kurumu of Turkey, the Instituto Argentino de Relaciones Industriales, and the rest, which in turn represent management associations in their own countries. In this way management men in different parts of the world can exchange information and advice.

• **Language** — There are other things which CIOS either facilitates or which members can find nowhere else: CIOS, for example, tackles the problem posed by the development of managerial terminology in many different languages. Its International Academy of Management has the task of refining and standardizing the meaning of such concepts as "operations research," "formologie," "work study," or "extensometrie."

Also, along with the United Nations, its Economic & Social Council, and UNESCO, the Comite has official consultative status as a non-governmental organization.

CIOS' task of bringing management people together and acting as a catalyst between governments, business managers, schools of business throughout the free world, is plainly one that is never finished. And most of its significant detail cannot easily be reported. But underlying all its activities is a common point of view.

CIOS aims to bring together the hundreds of people throughout the world who are convinced that management is a specific activity, distinct from such "technical" busi-

ness functions as finance, purchasing, production, or sales—and who regard it as subject to study and systematic improvement. Most of these go on to argue that management is scientific or "rational" (hence the Comite's title). In this view, management is a profession that should be organized like any other, through local and national groups to an international body.

• **Paradox** — If you will grant that the U. S. A. means management to most business people, it is something of a paradox that many American executives are unaware of any management groups beyond the individual associations to which they belong. CIPM, the American branch of CIOS, has been limited in membership and funds since its founding in 1933. Only nine management groups now belong, fewer than 80 companies pay its dues.

How has CIPM managed to survive? The secret has been a contract with the U. S. government International Cooperation Administration, which has given CIPM a leading share of its work as host to individuals and study groups from overseas. Accordingly, CIPM arranges for management experts from other countries to visit the U. S. to learn American methods of management.

A parallel task is to "export" seminar teams of U. S. management experts for service overseas. So far, 83 such groups have been organized.

• **Self-Help**—But the government contracts that have supported CIPM in these activities will not finance the New York congress in 1963; Lederer will have to recruit the help of U. S. business for that.

He will be helped in his task by the rapidly mounting interest among U. S. companies in international business. And his own experience will be valuable, too. Besides acting as consultant to the Committee for Economic Development and to the U. S. departments of State and Commerce, Lederer has had great experience abroad. Trieste and Turkey have known him as a management consultant. In Brazil he is managing director of Morris & Van Wormer. The International University of Rome in 1957 gave him its gold medal "for international contributions to management principles and philosophy." (*Business Week, Mar* 12, *p*72)

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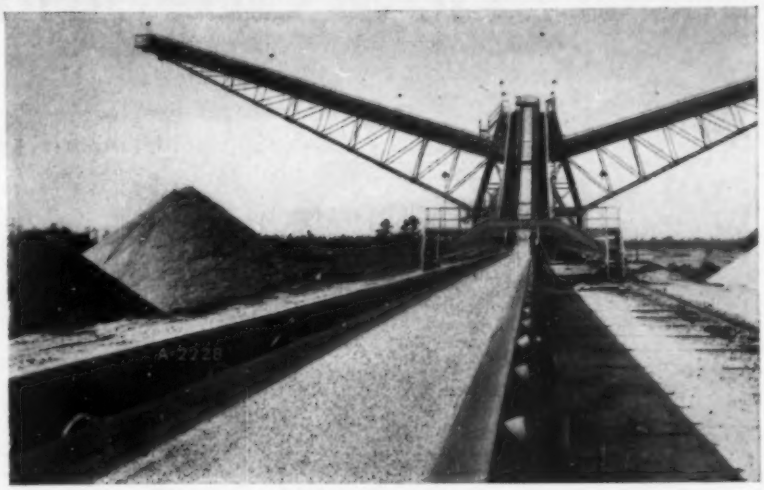

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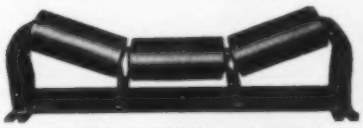

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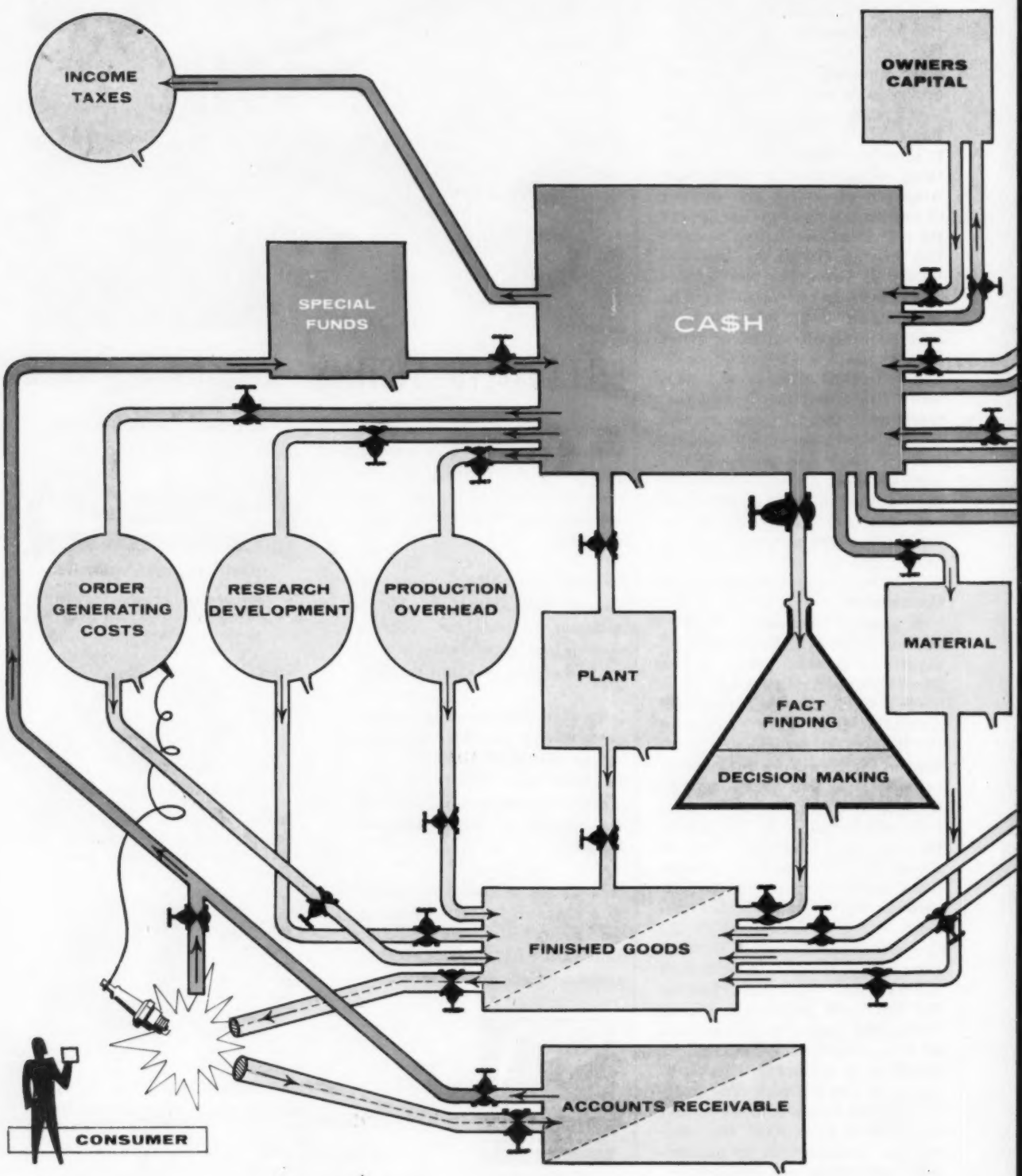
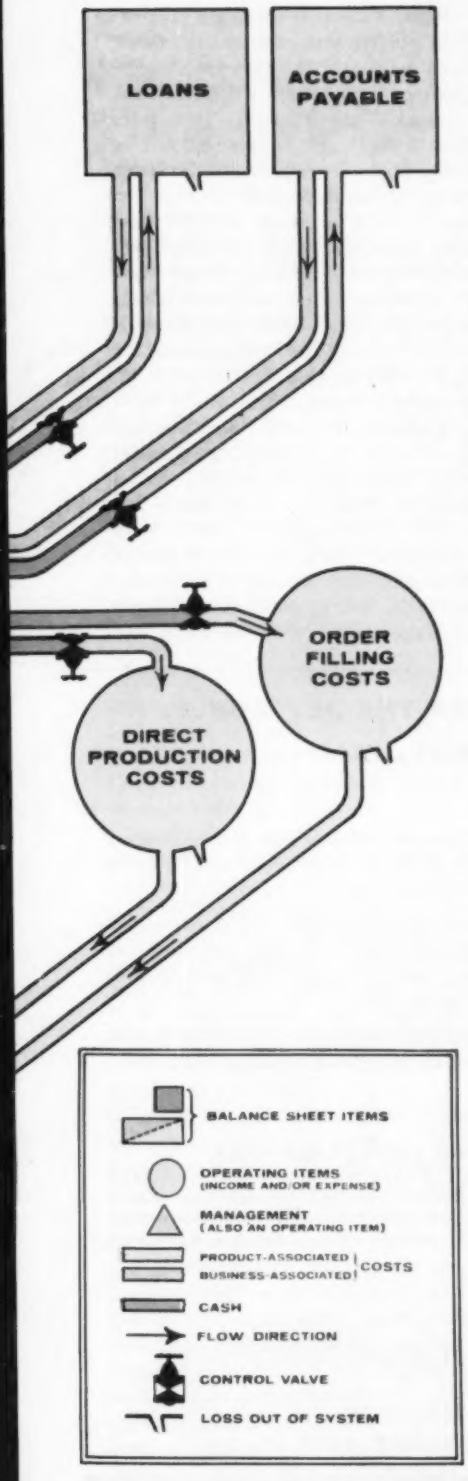


Assets Flow Through a Business



This "fluid system" provides fresh perspective on accounting and management control.

THE CHART at left helps explain the real significance of double-entry bookkeeping—which is its relationship to decision-making, its function as a management control. The diagram brings together the accounting values of the operating statement and of the balance sheet into one fluid, interlocking system.

The diagram was prepared by Dean James W. Culliton of Notre Dame University's School of Commerce, based on a version originally developed for Harvard University's Advanced Management Program. Dean Culliton describes the diagram in *The Harvard Business Review* (March-April, p144).

Items are classified by shape and color, as identified at the bottom of the diagram.

• **Provocation**—After pondering the diagram carefully, many experienced executives find "pipes" and "tanks" that seem out of place, or at least contradictory to their experience. This is all right with Dean Culliton, as long as the diagram provokes a re-examination of ideas on management control. Many executives see relationships in a fresh perspective.

Note that all the pipes are the same gage. They are not the same in real life, of course. And this leaves you to visualize the pipes as you think they are—or should be—in your business.

Costs and assets are transferred from one tank to another by opening a valve. Whether or not to open the valve is a management decision. Reporting that it has been opened is an accounting job.

• **Decision-Making** — The diagram shows clearly that costs are essential. No company can make money by shutting all the valves. Thus, management control is aimed at achieving optimum costs, not merely lowest costs.

The nature of depreciation is clarified. Cash is put into plant; plant drains slowly into finished goods; cash is replenished by customer payments. But note that cash can be stored in the special fund tank.

Management must decide whether to put the cash back into plant, return it to stockholders, or allow it to seep through the whole system. Management must also decide whether or not to raise money to built a plant beyond its cash position.

• **Accounting**—In all places except one, the amounts transferred from one tank to another are assumed to be equal. This exception is where the customer accepts the finished goods; he pays more than the goods cost. And with a stretch of his own imagination, Dean Culliton portrays order-generating costs (bottom left) not only flowing into finished goods but also striking the "spark" that affects the transfer of goods at a profit.

An accountant can assume that the values transferred between tanks are equal. But this is not always true: The tanks have waste valves. When an accountant discovers that all that went into a tank did not come out—bad debt is an obvious case—he must make an adjustment.

It is also important to note that accounting data does not always reinforce good decision-making. If a manager decides to open up a new sales territory with a "missionary" program, the profit and loss statement will normally show losses during the early period. This is because expenditures flow into a round cost tank.

The decision maker, in contrast, must think of such expenditures as an investment in future sales—as "fuel for the spark." Thus he might see the order-generating costs flowing into a square asset tank rather than a round cost tank.

Thus controlling valve movements—decision-making—often must be organized according to a completely different, and sometimes conflicting, logic from the one used in reporting the flow of costs and assets. ●

Triumphs & Trompe l'Oeil in Personnel

Testing has scored some notable victories in recent years. Now management is warned of abuses—things aren't always what they seem.

"INDUSTRIAL PSYCHOLOGISTS have some valuable wares to sell. But quacks and charlatans are always quick to move in on a new field to replace solid ability with glittering generalities. The astonishing aspect of this is the credulity of the industrialist!"

With this clear warning in mind, a U. S. psychologist asked a group of personnel men to try out a new personality test. Then at a later meeting, he returned to each man his "personality profile". Actually, it was nothing more scientific than a set of statements adapted from "dream" books and astrology charts, and each man's was identical.

Asked to evaluate the picture of their personalities, half the men said "amazingly accurate," another 40% said "good".

Personality testing is easily the most unreliable of today's personnel selection tools: None of the paper-and-pencil tests are proof against cheating, and at best they give a dubious measure of personality factors. The incident above points out another lesson.

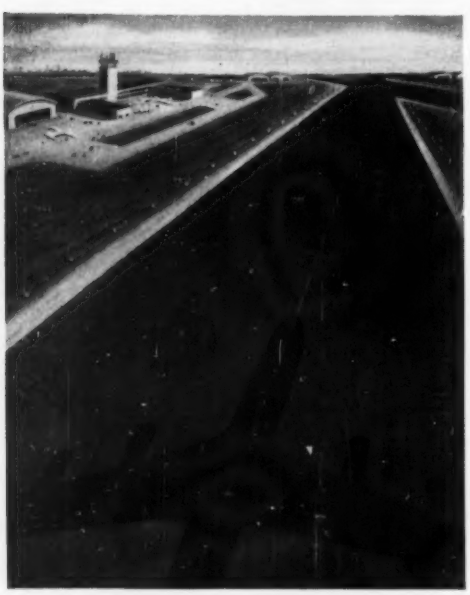
It is extremely dangerous to go out and buy a test, then start using it straightaway. In the first place, the test may not measure what it is supposed to measure; secondly, any test is worthless in the hands of someone who does not know how to use it. And most personnel directors, apparently, do not have an adequate knowledge of testing theory.

One of the U. S. A.'s leading experts on personnel testing, Robert L. Thorndike of Columbia University, recently wrote: "There has been too much enthusiasm for job-testing. . . . There is no question that there has been over-interpretation of these tests."

• **Opposition**—Following Thorndike's criticism, some of the newest tests have run into unexpected opposition. The latest addition to the personnel man's arsenal are tests for "creativity." After examining three of these tests, one critic notes that the test developers do not even agree on what they are testing: The tests are based on completely different measures of "creativity."

A more serious criticism comes from Donald A. Schon of Arthur D. Little, Inc., a research-engineering firm with a substantial stake in creative personnel. One of the basic arguments for tests—whether for creativity or something else—is that they are impersonal. Schon disputes even this advantage:

"In a situation in which it is enormously difficult to check on the final success or failure of personnel methods, but where it is necessary to make choices on some justifiable



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basis, creativity tests provide [an easy way out for] making difficult decisions without involvement.

"But it is just this personal involvement," Schon says, "which enables good interviewers to know creativity when they see it."

I. Spread of Testing

Despite the controversy, however, personnel testing is now done almost everywhere. In the U. S. A., an estimated three out of four companies do some form of routine testing—either by staff or outside service. In European countries, the best estimate is perhaps one company in 50; and elsewhere the use of tests drops sharply.

• **Variety of Tests**—A wide variety of ability tests are available to industry. In Britain, a country that is not very "test conscious," the National Institute of Industrial Psychology offers 11 tests for sale to qualified users: three verbal and two non-verbal mental ability tests, three special perception tests (spatial relations, for example), one clerical aptitude and one mechanical aptitude test. For the most part, these tests are used to select office workers, craftsmen and apprentices, but not equipment operators or supervisors.

In the U. S. A., the government-operated employment offices offer a routine testing service using the General Aptitude Test Battery developed by the U. S. Department of Labor. In contrast to British experience, the "GATB" has been found very useful for selecting skilled equipment operators; but as in Britain, unsatisfactory for supervisory personnel.

There are also three major test publishing houses: Science Research Associates, Chicago; Educational Testing Service, Princeton (New Jersey); The Psychological Corp., New York.

The Psychological Corp. has taken the lead in extending its services to overseas clients. Two years ago, it published Spanish and Portuguese editions of several mental ability tests and a mechanical aptitude test; in preparation are a clerical aptitude and space-relations tests with Spanish instructions. The company makes clear, however,

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A guide for management in the developing economies of the world

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An International Analysis

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PART I: AN INTERNATIONAL CONCEPT OF MANAGEMENT. 1. Organization and Management. 2. Management as an Economic Resource. 3. Management as a System of Authority. 4. Management as a Class. 5. The Development of Managerial Resources. 6. The Logic of Management Development: A Summary.

PART II: COMPARATIVE SYSTEMS OF MANAGEMENT. 7. Management in India. 8. Management in Modern Egypt. 9. Management in Chile. 10. Management in Israel. 11. Management in France. 12. Management in Italy. 13. Management in Japan. 14. Management in Germany. 15. Management in Sweden. 16. Management in Great Britain. 17. Management in the Soviet Union. 18. American Management in Perspective. 19. The Management of Foreign Firms in Economically Underdeveloped Countries.

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that the standards supplied with these tests are preliminary—the user must validate the tests for his own use.

In addition, there are hundreds of small U. S. firms that specialize in testing higher-level personnel. One firm, for instance, charges $45 for evaluating salesmen, $75 for sales engineers, $20 for insurance agents, and up to $150 for a sales executive. Many of these firms use their own tests, with performance claims based mostly on "satisfied clients."

II. The Underdeveloped Areas

The spread of routine testing around the world has been slowed by low wage standards and the low social status of working classes. In many countries, the cost of testing is often hard to justify for lower-level personnel. A consulting firm in Mexico City recently developed a whole range of tests for factory jobs, with its service charge ranging from $8 for low-skill jobs to about $120 for executive-level jobs. But paying a minimum wage of about $23 a month, most companies are reluctant to invest up to a half years' wages to fill a low-paid job.

The exceptions are progressive companies which realize that aptitude testing on the lowest level is the only chance they have to improve efficiency: Once a man is hired, Mexico's rigid seniority rules allow him to move to the highest paid job, sometimes without regard for his qualifications.

• **Triumphs**—Still, some of testing's greatest triumphs in recent years have been in the underdeveloped countries. The Arabian American Oil Co. developed a complete general classification battery, for use within the Saudi cultural framework, that promises to double the effectiveness of Aramco's employee selection program.

South Africa's gold mining companies commissioned the nation's National Institute of Personnel Research to develop a battery of basic aptitude tests that would bypass the problem of illiteracy and language. These "non-verbal" tests are now in routine use. To identify leadership ability, the Institute developed one of the world's most experimentally advanced tests. A group of recruits are given a task that requires teamwork, such as moving a cumber-

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some load over obstacles; as they perform, psychologists watch for the natural leaders.

A landmark in Asia was the setting up of a selection program for Saigon's police department. This experience provided the test developers with a wry comment on a persistent criticism of testing—that it stifles selection based on individuality. In Saigon, the psychologists had to overcome fears that the tests would single the applicants out as being "different;" this would mean a loss of face.

The big international companies make frequent use of testing in setting up new projects—oil refineries, for instance—in underdeveloped areas. Their psychologists use tests as a "negative screen," to weed out the least likely prospects for jobs. They also use intelligence tests to find men "with basic ability to learn." And they use trade tests—nomenclature, work samples, etc.—to check out claims made by craftsmen.

How accurate are personnel tests? Psychologists put it simply: Most of the reputable ability tests tell reasonably well what a man can do, but they do not tell how well he will do it.

U. S. psychologists say the best test batteries, backed by data collected over many years, predict performance 70% of the time. The reason it is not higher, is as much the lack of trained administrators as weaknesses in the tests.

Tests are validated by correlating test results with some sort of performance measure. This is where the trouble arises. Britain's National Institute says it has been unable to develop criteria because of management's attitude toward performance checks on one hand, and the unconscious bias of performance appraisers on the other.

An American psychologist, urging more emphasis on personnel research and less on "packaged programs," echoes this point of view. Erwin K. Taylor says that "even for routine factory and clerical jobs," personnel evaluation "has been fraught with all sorts of pitfalls." And as you climb the management ladder, "it becomes increasingly difficult to determine by simple observation not only how well an individual is performing but even what he is performing." ●

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FOR ALMOST 20 YEARS TOCCO has built and sold electronic, tube-type induction heaters, but now in 1960 we can offer a wider range of sizes than ever before to meet every RF heating requirement. TOCCOtron units are available with a nominal frequency of 450,000 c.p.s. or 4 megacycles for very high frequency applications. All are dependable, rugged production machines—*not* fragile laboratory instruments which are difficult and expensive to maintain.

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Because TOCCO makes both audio frequency equipment (motor-generator sets) and radio frequency equipment (electronic tube-type units as shown), you can always count on a completely unbiased equipment recommendation—the right equipment for your particular heating job.

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"Maximum ex Minimo"

"IN NO CASE since we have been doing this work have we failed to find less than 11% unnecessary variety due to faulty nomenclature and faulty numbering in manufacturing operations."

Edward Brisch, author of this statement, is a specialist in industrial classification and codification, and inventor of the "Brisch system" of inventory control. "Management must get over the idea that it can rely on names for identifying things," he says. Names are "haphazard, confusing, and inexact," according to Brisch.

Brisch has just opened an office in the U.S.A. (Toledo, Ohio) to show the cost-conscious American businessmen an aspect of scientific management they seem to have neglected. E. G. Brisch & Partners, Ltd., his consulting firm, already has offices in Britain, France, Belgium, the Netherlands, Portugal, and India.

Actually, management long ago undertook the task of applying codes and symbols to the information that a business must record, transmit, or store. Alphabetical and numerical systems are common; other systems go in for graphics or

Edward Brisch

for color. Most companies have in fact collected a variety of systems to serve various functions, each requiring a separate index and master key.

• **Brisch System** — What Brisch offers is a classification system that can accommodate literally everything in a company—organizational structure, staff, raw materials, subassemblies, parts, tools, buildings, services, scrap, waste. All can be numbered in a way that identifies, describes, and locates.

Furthermore, the information can be handled on punched cards. The Electro-file machine (picture) can turn up similar parts among 1,000 filed by pushing a button.

Brisch's system is entirely numerical, and every code number contains the same number of digits. Each digit, moreover, has an exact positional as well as sequential value—each part of the code number has a regular relation to other parts of the number.

• **Results**—Once the system has been installed, management can analyze inventory for duplications, obsolescence, overlapping.

The objective is to make the maximum variety of products out of the minimum variety of materials and methods, or as Brisch likes to put it, *maximum ex minimo*. Typical Brisch results: 600 paint thinners and powders cut to 278; 129 varieties of oil reduced to 22; a $300,000 stock of bearings cut to $30,000.

Brisch has installed his system in more than 100 companies in a dozen fields. Thanks to businessmen's increasing concern with inventories (page 17), his firm is now able to command fees that are among the highest in the consulting profession. (*Business Week, Mar 26, p 169*). **Mr. Brisch died April 9, while IMD was on the press.**

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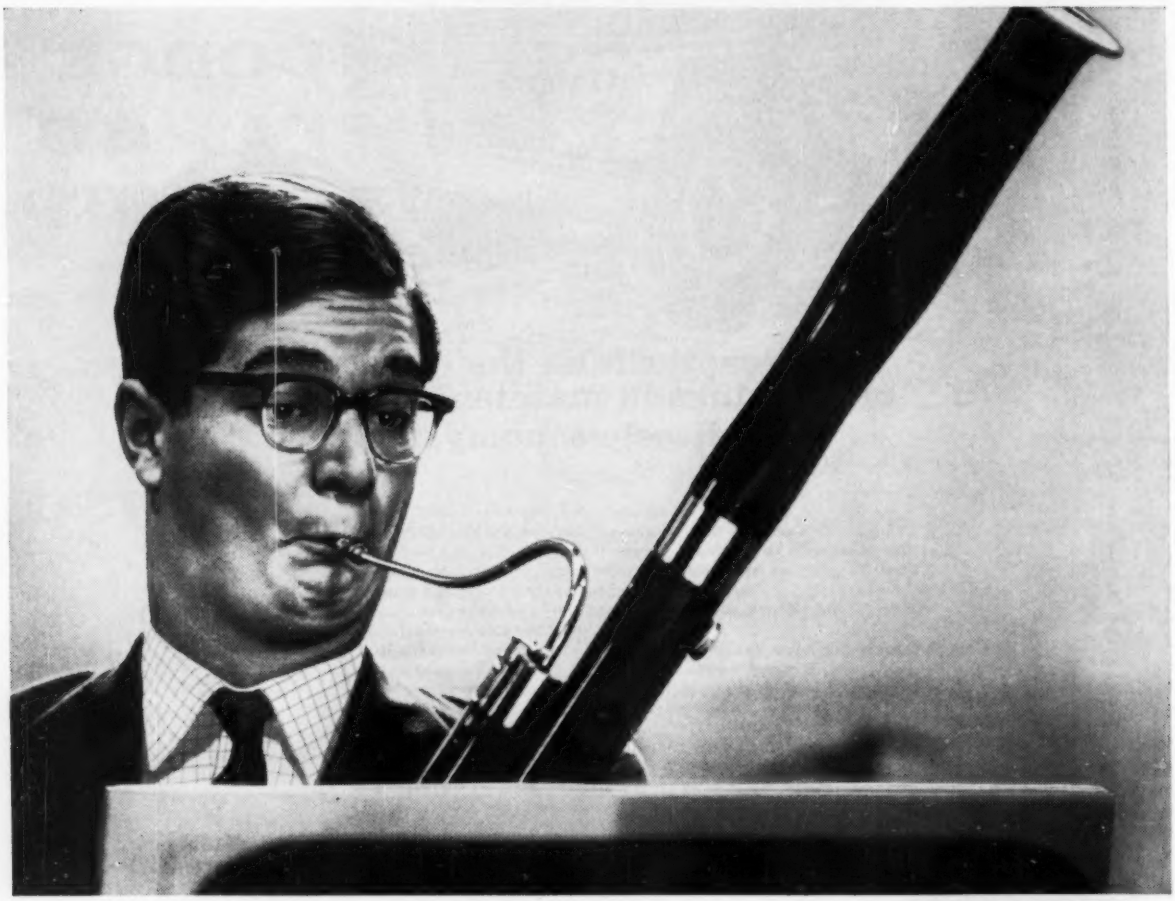

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Recommended Reading

Wages and Salaries . . .

. . . by Robert E. Sibson, discusses wage and salary policies of leading American firms, provides data on job evaluation, merit-rating, wage incentives, fringe benefits, problems of employee morale. 224 pages, $5.25. (American Management Assn., 1515 Broadway, New York 36, N. Y., U.S.A.)

Running a Family Business

The Corporation Course is designed for the executive who has to make the decisions in the typical family or closely-held corporation. The course provides answers to questions concerning financing, tax control, dividend procedures, record keeping, stockholders' and directors' meetings. 900 pages, $24.50. (Prentice-Hall Inc., Englewood Cliffs, N. J., U.S.A.)

How They Work

Modern Commodity Futures Trading, by Gerald Gold, is a complete guide to commodity trading and profitable techniques in the futures market. There's a useful review of U.S. commodity markets, government price support and surplus disposal policies, seasonal price patterns, and chart trading methods. 248 pages, $10.00. (Commodity Research Bureau Inc., 82 Beaver Street, New York 5, N. Y., U.S.A.) . . . How The City Works, by Sir Oscar Holson, takes you on a tour of the British financial center—the City of London's institutions and how they work. There are special chapters on Building Societies and Hire Purchase Finance. 8s 6d. or $1.20. (News Chronicle, 12-22 Bouverie St., London EC4, England.) . . . The New York Stock Exchange will send you a booklet explaining how that institution works, plus other data of interest to businessmen and investors around the world. (New York Stock Exchange, 11 Wall Street, New York, N. Y., U.S.A.)

Metalworking 'Round the World

The International Directory for Machinery, Apparatus and Tools is a concise guide to the precision metalworking industries and allied trades throughout the world. The 1960 edition, published this month, includes a special section for suppliers of atomic industries. (Hugo Buchser, Office for Industrial Information, P.O. Box 402, Geneva 11, Switzerland.)

Bulletins from Industry

Bulletin RHC-959-4M will tell you all about infrared heating: its principles, advantages, applications and systems. (Fostoria Corp., Infrared Div., Fostoria, Ohio, U.S.A.) . . . The Skil Corp. has complete new catalogs covering their industrial-automotive and woodworking power tools. (Skil Corp., 5033 Elston Ave., Chicago 30, Ill., U.S.A.) . . . Catalog #59 provides complete information on the Willson line of industrial, personal safety equipment. (Willson Products, Div. of Ray-O-Vac Co., Reading, Pa., U.S.A.)

Keeping Up With World Politics

Political Handbook of the World—1960, edited by Walter H. Mallory, provides up-to-date information on the governments, leaders, political parties, major newspapers of 89 nations. There's a section on the United Nations as well. 245 pages, $4.50. (Council on Foreign Relations, 58 East 68th Street, New York 21, N. Y., U.S.A.)

INTERNATIONAL
MANAGEMENT'S

Personal Business

Growing Old Gracefully—Behind Your Desk

Learn to grow old gracefully behind your desk, go at your own speed, and you will continue to learn and absorb new ideas for a long time. This is the essence of the "The Older Director", a new booklet prepared by the British Institute of Directors (there's some good advice here for "younger" directors, too).

Remember, as a top manager you possess judgment based on hard, long experience—a quality that more than compensates for the limitations of advancing age. Far too many older executives greatly overestimate their growing and (to them) apparent encumbrances.

But the "older director" also has some hard facts to face. First, there are the obvious slowdowns like failing eyesight or hearing. But even more of a drawback is having to cope with less physical and mental stamina, a rustier memory and, especially, a deep-seated tendency to "live in the past" and thus reject new people, new situations, and new ideas.

However—and this is where the advice comes in—you can largely override these limitations by taking a healthy attitude toward them. This means admitting the strains of age instead of covering them up—for instance, not feeling ashamed if you need a short nap after lunch.

Get rid of the idea that as people get older they lose their ability to learn. Given reasonable freedom from petty distractions they can learn as fast and retain as long as much younger men.

Here are some practical suggestions offered to the older executive:

—Make periodical medical check-ups a habit.

—Learn to delegate: Your job is to define the task, then let somebody else do the rest. Try to slow down your work pace; don't attempt to keep on top of every detail. Notes and diaries will help you to save your memory and display your strong point, judgment.

—Set aside ample periods when you are "not available." You are paid to think and advise, and this requires time and tranquility.

—Maybe the good old days weren't so good; in any case, most older people tend to live in the past. Try to guard against this by reserving judgment before you reject a new proposal, and taking time to sift it.

—Do not worry about your status, or the threat of waning influence. This is nonsense, and a common, destructive habit among older managers.

—Retire while there is still enjoyment in you.

Watching Lions Comfortably—Behind a Camera

If business takes you to Bombay, note that you can now make a weekend excursion to the Gir forest to watch what may be the last remaining "Big Cats" in Asia—from a distance of about 18 meters and for little more than $45. (Also thrown in is a trip to the historic temple of Somnath nearby.) Tourists are flown to the forest, lodged in a luxurious guest house, and whisked back to town early Monday morning. The only shooting, of course, is done by camera: While the lions enjoy their kill, usually a buffalo, you can stroll away from your station-wagon and take all the shots you want.

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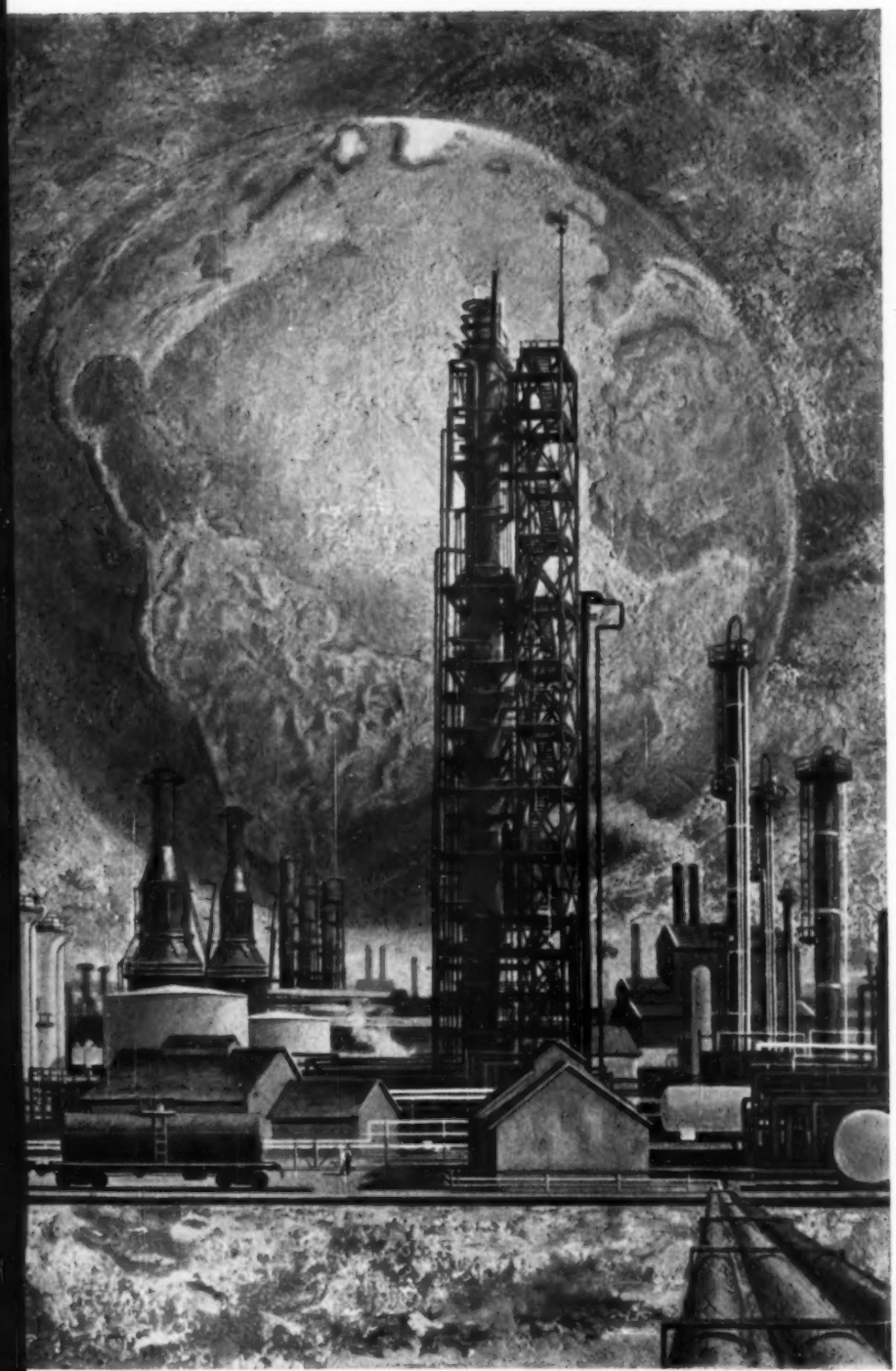

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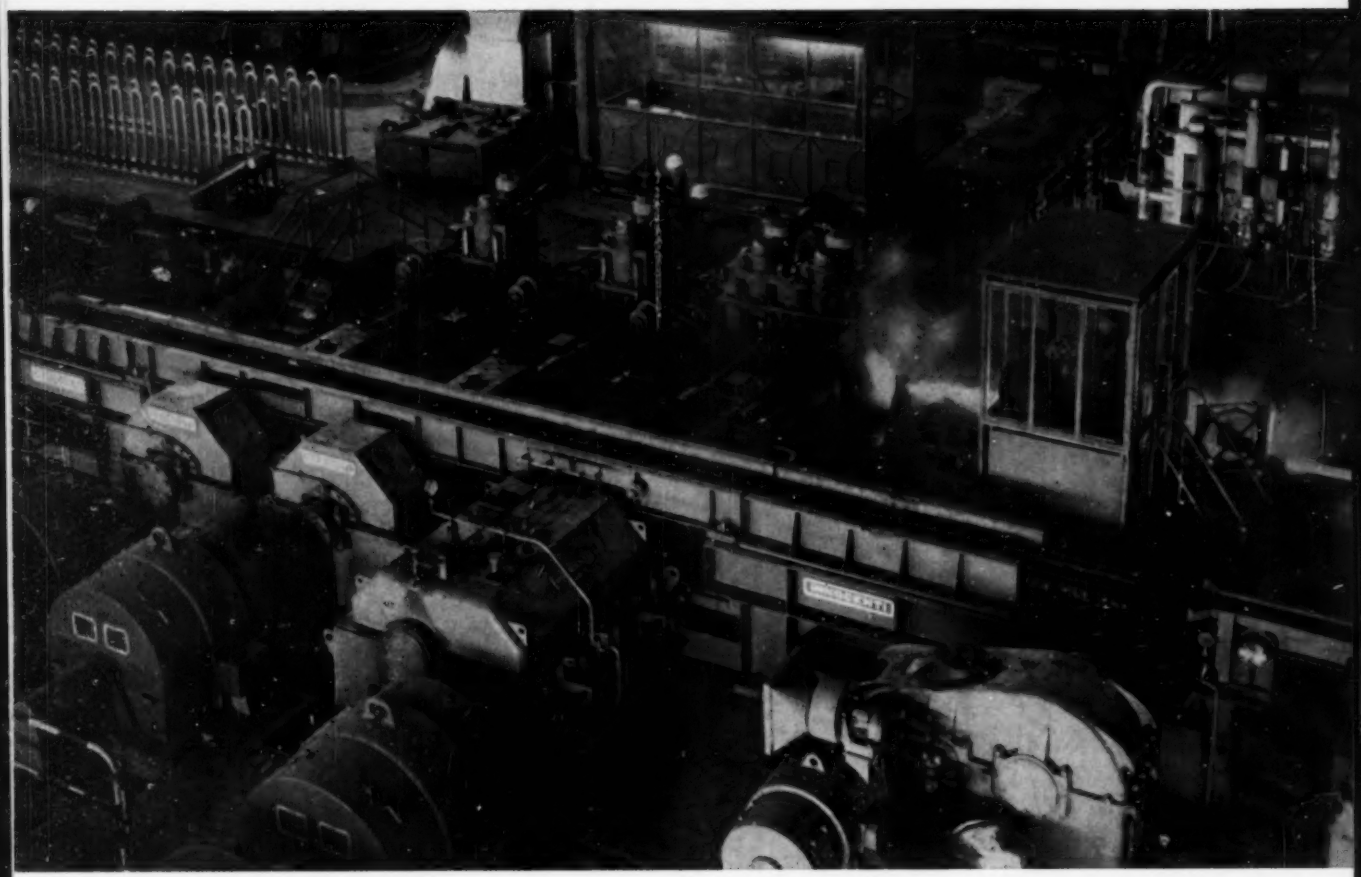

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continuous mill

for the manufacture of seamless steel tubes and pipes

The Continuous Mill associated with the Stretch Reducing Mill in the double version for making tubes from $^3/_8$" to 4" and from $2^3/_8$" to 7" successfully meets present requirements for consistently higher quality and quantity.

- Highest Capacity: the annual production can reach respectively 150,000 and 250,000 tons in the two versions.
- Highest yield: 93% - from billet to tube
- Complete automation: 1,5 man hour per produced ton
- Possibility to make tubes with 2,25 mm minimum thickness without stretching
- Extremely easy to operate
- Low installation costs in respect of capacity.

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